DMC 14.42 Sensitive Area Regulations

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Chapter 14.42 Sensitive Areas Regulations

14.42.010 Purpose

The purpose of this chapter is to identify environmentally sensitive areas and to supplement the development requirements contained in the various use classifications by providing additional controls without violating any citizens' constitutional rights. Wetlands, fish and wildlife habitat conservation areas, geologically hazardous areas, frequently flooded areas, and critical aquifer recharge areas as defined in this chapter, constitute environmentally sensitive areas that are of special concern to Duvall. The standards and mechanisms established in this overlay district are intended to protect these environmentally sensitive features in Duvall. By regulating development and minimizing alterations to sensitive areas, this overlay district seeks to implement the goals and policies of Washington State to:

A. Protect members of the public and public resources and facilities from injury, loss of life, property damage or financial losses due to flooding, erosion, landslides, seismic events, soil subsidence or steep slope failures;

B. Protect unique, fragile and valuable elements of the environment including fish and wildlife and their habitats;

C. Mitigate unavoidable impacts on environmentally sensitive areas by regulating alterations in and adjacent to sensitive areas;

D. Prevent cumulative adverse environmental impacts to sensitive areas;

E. Protect the public trust as to navigable waters and aquatic resources;

F. Meet the requirements of the National Flood Insurance Program and maintain Duvall as an eligible community for federal flood insurance benefits;

G. Alert members of the public including, but not limited to appraisers, owners, potential buyers or lessees to the development limitations of sensitive areas;

H. Provide City officials with sufficient information to protect sensitive areas;

I. Implement the policies of the State Environmental Policy Act, Revised Code of Washington (RCW) 43.21C, the Washington State Growth Management Act (GMA), and the Duvall comprehensive land use and utility plans which call for protection of the natural environment and the public health and safety;

J. Protect wetlands, floodplains, critical aquifer recharge areas, and fish and wildlife habitat conservation areas by applying the Best Available Science to ensure no net loss of ecological functions and values; and

K. Allow for reasonable use of private property in accordance with DMC 14.42.070.

14.42.020 Applicability

A. When any provision of any other chapter of this code conflicts with this chapter, that which provides more protection to the sensitive areas shall apply unless specifically provided otherwise in this section; provided, however, that municipal provisions shall not conflict with preemptive controlling state regulations such as the Shoreline Master Program, Chapter 173-26 WAC.

B. Until the requirements of these sensitive area regulations are fulfilled, the City shall not grant any approval or permission to alter the conditions of any land, water or vegetation, or to construct or alter any structure or improvements for an applicable development, project, or action.

C. The following are applicable activities of developments, projects, and actions that must comply with all provisions of the sensitive area regulations, unless otherwise exempted by the Chapter:

1. Removing, excavating, disturbing or dredging soil, sand, gravel, minerals, organic matter or materials of any kind, clearing, grazing, or creating impervious surface.

2. Dumping, discharging or filling with any material.

3 Constructing, reconstructing, demolishing or altering the size of any structure or infrastructure, subject to the provisions for a nonconforming structure of DMC 14.83, provided that there is no additional impact on sensitive areas and/or buffer.

4. Any other activity for which a City permit is required including but not limited to the following: Type I permits, building permits and other construction permits; and Type II, Type III permits, and Type IV permits in accordance with DMC 14.08.010.C

D. Altering sensitive areas and/or buffers is prohibited except when:

1. Alteration is approved pursuant to the reasonable use or variance provisions of DMC 14.42.070; or

2. Alteration is necessary to accommodate an essential public facility or public utility where no feasible alternative location will accommodate the facility and the facility is located, designed, and constructed to minimize and where possible avoid sensitive area disturbance to the maximum extent feasible; or

3. Alteration is part of an essential element of an activity allowed by this title and all feasible measures to avoid and minimize impacts have been employed. Such feasible measures shall include but not be limited to clustering where permitted by zoning and as appropriate to protect sensitive areas and buffers. The purposes of clustering shall be to minimize adverse effects of development on sensitive area functions and values, minimize land clearing, maintain soil stability, preserve native vegetation, maintain hydrology, and mitigate risk to life and property.

E. Land that is located wholly within a sensitive area or buffer may not be platted for purposes of creating buildable lots. Land that is located partially within a sensitive area or its buffer may be platted provided that each resulting lot has sufficient buildable area outside of the sensitive area or buffer with provision for drainage, erosion control, vegetation maintenance and related features that will not adversely affect the sensitive area or its buffer.

14.42.030 Sensitive Area Review

A. Authorizations Required Prior to Issuing a Permit.

The City shall determine if the proposed activity or use is permitted pursuant to this chapter. No land use development permit, construction permit, or land division approval required by this title shall be granted until the Director has determined that the applicant has complied with the applicable provisions of this chapter including the mitigation standards set forth in DMC 14.42.130. The following provisions apply:

1. When a development proposal includes, is adjacent to, or within 300 feet of a sensitive area or associated buffers the applicant shall meet with the Director prior to the submission of any required development application to discuss the goals, purposes, objectives and requirements of the sensitive areas review. At the Director's discretion, this can be addressed concurrently with the pre-application meeting for the project.

2. The Director shall perform a sensitive area review for any application for a development proposal on a site that includes one or more sensitive areas or would affect sensitive areas on adjacent lands, unless otherwise provided in this chapter. As part of all development applications, the Director shall verify the information submitted by the applicant to:

a. Confirm the nature and type of the sensitive areas and associated buffers;

b. Determine the need for sensitive area studies and the adequacy of any such studies submitted with the application;

c. Determine whether the development proposal is consistent with these sensitive area regulations;

d. Determine whether proposed alterations to sensitive areas are necessary;

e. Determine if the mitigation and monitoring plans and bonding measures proposed by the applicant are sufficient to protect the public health, safety and welfare consistent with the goals, purposes, objectives and requirements of this overlay district.

3. The Director shall include the sensitive area regulation requirements in every report recommendation or administrative decision and conditions of approval as may be necessary to address the sensitive area regulations.

4. The decision-maker may approve, approve with conditions, or deny any development proposal in order to comply with the requirements of this chapter and to carry out the goals, purposes and objectives of these regulations. Decision-making in accordance with this title shall be in accordance with DMC 14.08.010. The hearing examiner shall give the Director's recommendation substantial weight in project permit application consideration.

5. Approval of a development proposal pursuant to the provisions of this chapter does not discharge the obligation of the applicant to comply with the other provisions of this code.

B. Identification and Mapping of Sensitive Areas

The City and/or state agencies have partially identified sensitive areas, and areas where the conditions under which sensitive areas typically occur are known, or have the potential to occur. The approximate location and extent of sensitive areas within the City's jurisdiction are shown on the sensitive area maps, which shall be available at the City's Planning Department for public inspection. Property owners, the Director, and or members of the public may use these as a general guide but the maps do not provide a comprehensive accounting of areas subject to this chapter nor do they provide a definitive sensitive area designation. Sensitive area locations and boundaries shown on the City's maps are approximate and may not include all sensitive areas or required buffers that may be associated with sensitive areas. Field investigation, analysis by a qualified professional and review of other sources of credible scientific information such as Washington Department of Fish and Wildlife (WDFW) Priority Habitat Species data, and Washington Department of Natural Resources stream typing maps shall be required to confirm the presence or absence of a sensitive area and its boundaries and buffers.

C. Relationship to Other Jurisdictions

Compliance with the provisions of this chapter does not necessarily constitute compliance with other regulations and permit requirements. Permit applicants are responsible for complying with all federal, state, county, and local regulations that may pertain to a proposed development, provided that the following shall apply:

1. In cases where other agencies have jurisdiction over sensitive areas and the Director determines that the permit conditions imposed by such agencies satisfy the requirements of this chapter, those requirements may be adopted to meet the requirements of this chapter. Such agencies may include, but are not limited to; the United States Army Corps of Engineers, the United States Environmental Protection Agency, and United States Fish and Wildlife Service, the National Marine Fisheries Service or NOAA Fisheries and the Washington State Department of Ecology and Department of Fish and Wildlife.

2. The City shall make findings required by this chapter when adopting conditions of another jurisdictions' permit. Such requirements shall be a condition of sensitive area approval and enforceable by the City. In the event that there is a conflict between permit requirements and the standards of this of this chapter, the more restrictive standards shall apply.

3. The City shall notify the applicant in writing when this DMC 14.42.030(C) applies.

14.42.040 General Exemptions

The following are exempt from the provisions of this chapter and any administrative rules adopted thereunder:

A. Emergencies. Those activities necessary to prevent an immediate threat to public health, safety, or welfare, or that pose an immediate risk of damage to private property and that require remedial or preventative action in a timeframe too short to allow for compliance with the requirements of this chapter.

Emergency actions that create an impact to a sensitive area or its buffer shall use reasonable methods to address the emergency; in addition, they must have the least possible impact to the sensitive area or its buffer. The person or agency undertaking such action shall notify the Director within one (1) working day following commencement of the emergency activity. Within thirty (30) days, the Director shall determine if the action taken was within the scope of the emergency actions allowed in this subsection. If the Director determines that the action taken, or any part of the action taken, was beyond the scope of an allowed emergency action, then enforcement provisions DMC 4.02.140 shall apply.

After the emergency, the person or agency undertaking the action shall fully fund and conduct necessary restoration and/or mitigation for any impacts to the sensitive area and buffers resulting from the emergency action in accordance with an approved sensitive area report and mitigation plan. The person or agency undertaking the action shall apply for all approvals required for this chapter. Restoration and/or mitigation activities must be initiated within one (1) year of the date of the emergency, and completed in a timely manner;

B. For the following ongoing agricultural activities in existence on the date these regulations become effective:

1. Grazing of livestock,
2. Mowing of hay, grass or grain crops,
3. Tilling, discing, planting, seeding, harvesting, and relative activities for pasture, food crops, grass seed or sod, provided that such activities shall not involve the use or conversion of any wetland or stream or related buffer not currently being used for such activity;
4. Normal and routine maintenance of existing irrigation and drainage ditches,
5. Normal and routine maintenance of farm ponds, fish ponds and livestock watering ponds; provided that, such activities shall not involve conversion of any wetland not currently being used for such activity;

This exemption shall not apply to agricultural use that has been abandoned pursuant to DMC 14.76, Nonconformance and Reuse Standards, provided that this shall not apply to allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left unseeded; allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions; allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement;

C. Forest Practices governed by a valid Forest Practices Permit granted by the Washington State Department of Natural Resources, except where:

1. The lands have been or are proposed to be converted under a conversion option harvest plan to a use other than commercial forest product production as provided in RCW 76.09.050 and RCW 76.09.240, or
2. On lands which have been platted after January 1, 1960, as provided in RCW 76.09.050 and RCW 76.09.240.

D. Maintenance of existing, lawfully established landscaping and gardens within a regulated sensitive area or its buffer, including but not limited to, mowing lawns, weeding, removal of noxious and invasive species, harvesting and replanting of garden crops, pruning and planting of ornamental vegetation or indigenous native species to maintain the condition and appearance of such areas as they existed prior to adoption of this code, provided that native growth protection areas, mitigation sites, or other areas protected via conservation easements or similar restrictive covenants are not covered by this exception.

E. Low impact activities such as hiking, canoeing, nature study, photography, fishing, education or scientific research.

F. Activities undertaken to comply with a United States Environmental Protection Agency superfund related order, or a Washington Department of Ecology order pursuant to the Model Toxics Control Act that specifically preempts local regulations in the findings of the order.

14.42.050 Allowed Activities

A. Maintenance, operation and/or repair of existing dikes and drainages, existing stormwater facilities rights-of-way, trails, roads, utilities and buildings within sensitive areas, provided that the activity does not further alter, impact, or encroach upon the sensitive area or buffer or further affect the functions of sensitive areas, and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair and provided further that:

1. The applicant shall submit a written description of the maintenance activity to the Director with all of the following general information:

    a. Type, timing, frequency and sequence of the above maintenance activity to be conducted;

    b. Type of equipment to be used (hand or mechanical);

    c. Manner in which the equipment will be used;

    d. Best management practices to be used; and

    e. Any chemical applications to be used.

2. The applicant's written description may be valid for up to five years provided that there is no significant change, as determined by the Director, to the activities submitted in the written description for the maintenance activity or to the natural environment.

3. Maintenance plans are not required for residential uses.

B. Maintenance, repair or replacement of an existing non-conforming structure pursuant to the requirements of DMC 14.76.070, Repair or reconstruction of nonconforming structure, that does not further alter or increase the impact to the sensitive area or buffer and results in no increased risk to life or property as a result of the proposed modification or replacement is allowed, provided that this provision does not apply to structures damaged or destroyed beyond fifty (50) percent of their assessed value and provided further that a building permit application for repair or reconstruction is submitted to the City within twelve (12) months of the occurrence of the damage or destruction;

C. Activities within an improved right-of-way including replacement, modification, installation, or construction of utility facilities, lines, pipes, mains, equipment, or appurtenances, not including substations, when such facilities are located within the improved portion of the public right-of-way or a City authorized private roadway except those activities that alter a wetland or watercourse, such as culverts or bridges, or result in the transport of sediment or increased stormwater; are allowed; subject to the following:

1. Sensitive area and/or buffer widths shall be increased, where possible, equal to the width of the lost sensitive area and/or buffer; and

2. Retention and/or replanting of native vegetation shall occur wherever possible along the right-of-way improvement and resulting disturbance;

D. Utility projects that have minor or short-duration impacts to sensitive areas, as determined by the Director in accordance with the criteria below, and which do not significantly impact the functions or values of a sensitive area(s), provided that such projects are constructed with best management practices and appropriate restoration measures are provided. These activities shall not result in the transport of sediment or increased stormwater. Such allowed minor utility projects shall meet the following criteria:

1. There is no practical alternative to the proposed activity with less impact on sensitive areas; and
2. The activity involves the placement of a utility pole, street signs, anchor, or vault or other small component of a utility facility; and
3. The activity is the minimum necessary to accomplish the installation.

E. Public and private pedestrian trails are allowed, except in wetlands, fish and wildlife habitat conservation areas, and/or their buffers, subject to the following:

1. The trail surface shall meet all other City requirements including water quality standards;

2. Sensitive area and/or buffer widths shall be increased, where possible, equal to the width of the trail corridor, including disturbed areas; and

3. Trails proposed to be located in landslide or erosion hazard areas shall be constructed in a manner that does not increase the risk of landslide or erosion and in accordance with an approved geotechnical report;

F. The following vegetation removal activities are allowed in sensitive areas:

1. The removal of the following invasive vegetation with hand labor and light equipment:

a. English Ivy (*Hedera helix*);

b. Himalayan blackberry (*Rubus discolor*, *R. procerus*);

c. Evergreen blackberry (*Rubus laciniatus*); and

d. Noxious weed species as defined by the State of Washington.

2. The removal from sensitive areas and buffers of hazard trees that are posing a threat to public safety, or an imminent risk of damage to a permanent structure, provided that:

a. The applicant submits a report from a certified arborist, or professional forester that documents the hazard for any trees that are not already dead or clearly dying and are posing a threat to public safety, or an imminent risk of damage to a permanent structure; and provides a replanting schedule for the replacement trees in compliance with the replacement tree requirements of DMC 14.42.050(g)(2)(d);

b. Tree cutting shall be limited to pruning and crown thinning, unless otherwise justified by a certified arborist or professional forester. Where pruning or crown thinning is not sufficient to address the hazard, trees should be removed or converted to wildlife snags;

c. If native vegetation is cut or removed from a sensitive area or buffer, it shall be left within the sensitive area or buffer where practicable unless removal is warranted due to safety considerations, the presence of an established disease infestation or other hazard, or because of access or maintenance needs if the area is a utility or access right-of-way;

d. The landowner shall replace any trees that are removed with new trees at a ratio of one replacement tree for each tree removed (1:1) in accordance DMC 14.40.030.D. Replacement trees may be planted at a different, nearby location if it can be determined that planting in the same location would create a new hazard or

potentially damage the sensitive area. Replacement shall be in accordance with DMC 14.40.030.D.e. Hazard trees or trees that pose an imminent threat to life or property may be removed in accordance with DMC 14.40.030, Tree Protection Standards.

3. Measures to control a fire or halt the spread of disease or damaging insects consistent with the state Forest Practices Act; Chapter 76.09 RCW, provided that the removed vegetation shall be replaced in-kind or with similar native species within one (1) year in accordance with an approved restoration plan.

G. Minor site investigative work necessary for land use submittals, such as surveys, soil logs, percolation tests, and other related activities, where such activities do not require construction of new roads, removal of native trees or shrubs, or displacement of more than 5 cubic yards of material are permitted. Investigations involving displacement of more than 5 cubic yards of material, including geotechnical soil borings, groundwater monitoring wells, percolation tests, and similar activities shall require submittal of specific plans and restoration plans. In every case, impacts to the sensitive area shall be minimized and disturbed areas shall be immediately restored.

14.42.060 Sensitive Area Studies

A. Required. An applicant for a development proposal that includes, or is adjacent to, sensitive areas or buffers, shall submit such studies as are required by the Director to adequately evaluate the proposal and all probable impacts. The study shall be prepared by a qualified professional as defined below and with all associated costs, including independent review, paid for by the applicant.

1. A qualified professional or qualified consultant" means a person with experience and training with expertise appropriate for the relevant sensitive area subject in accordance with WAC 365-195-905(4). A qualified professional must have obtained a B.S. or B.A. or equivalent degree in biology, soil science, engineering, environmental studies, fisheries, geology, geomorphology or related field, and related work experience and meet the following criteria:

2. A qualified professional for wetlands must have a degree in biology, ecology, soil science, botany, or a closely related field and a minimum of five years of professional experience in wetland identification and assessment in the Pacific Northwest.

3. A qualified professional for geologically hazardous areas must be a licensed engineering geologist or geotechnical engineer, licensed in the state of Washington.

4. A qualified professional for fish and wildlife habitat conservation areas must have a degree in wildlife biology, ecology, fisheries, or closely related field and a minimum of two years professional experience related to the subject species/habitat type.

5. A qualified professional for sensitive aquifer recharge areas means a Washington state licensed hydrogeologist, geologist, engineer, or other scientist with a minimum of two years professional experience in preparing hydrogeologic assessments in Washington.

6. A qualified professional for trees in sensitive areas means an individual with related training and experience to demonstrate competency in arboriculture or urban forestry with tree retention, protection, and planting expertise and must be certified by the International Society of Arboriculture.

B. Waivers. The Director may waive the requirement for a sensitive area study if there is a substantial showing that the following criteria are met:

1. A field investigation report documents no sensitive areas effect the property;

2. There will be no alteration of the sensitive area or required buffer;

3. The development proposal will not impact sensitive areas in a manner contrary to the goals, purposes, objectives and requirements of this chapter;

4. The minimum standards required by this chapter are met.

C. Exceptions. No sensitive area study is required for the following development proposals:

1. A residential building permit for the remodel of a structure when no alteration of the sensitive area will occur as a result of the remodel activity or any associated construction for additional parking;

2. A residential building permit for a lot that was subject to a previously approved sensitive areas study, provided that the previous study identified the impacts associated with the current development proposal;

D. The contents of the sensitive area study are specified in the following sections of this chapter. The Director may require such supplements or amendments to the study as necessary to develop a reasonably comprehensive understanding of the site conditions, potential impacts, and required mitigation.

E. Independent Review. Based on a review of the information contained in the sensitive area study and the conditions of the development proposal site, the Director may require independent review of any such study. This independent review shall be performed by a qualified professional approved by the City and paid for by the applicant. The purpose of such independent review is to assist the City in evaluating the effects on sensitive areas that may be caused by a development proposal and to facilitate the decision making process.

14.42.070 Reasonable Use

A. If the application of the sensitive area regulations would deny all reasonable use of the property; development may be allowed if the development is consistent with the general purposes of the sensitive area regulations, is in the public interest, and a Hearing Examiner approves a Reasonable Use Permit.

B. Reasonable Use Standards: To approve a reasonable use the Hearing Examiner for the City must find that the proposal is consistent with all of the following criteria:

1. There is no portion of the site not subject to sensitive area regulations where the provisions of the sensitive area regulations would not allow reasonable economic use, without a Reasonable Use Permit, including agricultural use or continuation of legal non-conforming uses;

2. There is no feasible on-site alternative to the proposed use or activities that will provide reasonable economic use, including location on any contiguous parcel that has been under the ownership or control of the applicant since the effective date of this chapter; other allowed uses; continuation of legal non-conforming uses; reduction in size, change in timing of activities, revision of road and lot layout, and/or related site planning considerations, that would allow a reasonable economic use with less adverse impacts to sensitive areas and associated buffers;

3. The inability to derive reasonable economic use of the property is not the result of actions by the applicant in segregating or dividing the property and/or creating the condition of lack of use after the effective date of this chapter.

4. All reasonable methods to avoid or reduce adverse effects on sensitive area functions and values have been employed, including locating activities as far as possible from sensitive areas and design that will result in the minimum alteration of sensitive areas and associated buffers, existing topography, vegetation, fish and wildlife resources, hydrological conditions, and geologic conditions. Where both sensitive areas and buffer areas are located on a parcel, buffer areas shall be disturbed in preference to the sensitive area;

5. The project includes compensatory mitigation for unavoidable sensitive area and buffer impacts in accordance with the mitigation requirements of this chapter.

6. The proposed activities will not result in adverse effects on endangered or threatened species as listed by the federal government or the State of Washington, or be inconsistent with an adopted recovery plan;

7. The proposed activities will not result in damage to nearby public or private property and are not a threat to the health or safety of people on or off the site;

8. The proposed activities will not lead to degradation of ground water or surface water quality and will comply with all state, local and federal laws, including those related to sediment control, pollution control, floodplain restrictions, and on-site wastewater disposal.

C. An application for a Sensitive Areas Reasonable Use exception shall follow the procedures for a Type III review pursuant to DMC 14.08, Permit Processing.

14.42.080 Appeals

A. Any decision to require a sensitive area study pursuant to this chapter may be appealed by the applicant to the hearing examiner in accordance with DMC 14.08.010.C. A decision for such a study shall be considered a Sensitive Areas Permit.

B. Any decision to approve, condition or deny a project permit application based on the requirements of the sensitive area regulations may be required in conjunction with and according to the review procedures for the permit or approval involved. Where this chapter gives specific decision-making authority to the Director or the Public Works Director, any person may appeal the provisions of the Director's decision to the hearing examiner at the time the underlying land use application is being considered for review.

C. Any decision authorized by the sensitive area regulations where no review process exists for the permit or approval involved beyond the Director, may be appealed by an aggrieved party to the hearing examiner pursuant to DMC 14.08.

14.42.090 Density Credits

A. Sensitive areas and their buffers may be used in the calculation of allowed residential density.

B. Full density as allowed by underlying zoning and minimum residential density goals may not be attained on specific parcels where sensitive areas impose inherent limitations on development intensity.

14.42.100 Notice on Title-Plat Map-Site Plan

A. The owner of any property containing sensitive areas on which a development proposal is approved shall file with the Records and Elections Division of King County a notice in a format approved by the Director and provides a copy of the filed notice to the Duvall Planning Department. The notice shall:

1. State the general presence of the sensitive area and/or buffer area on the property, and identify that there are limitations and restrictions on uses and actions in or affecting the sensitive area and/or buffer imposed by this code and by specific conditions of approval. The notice shall indicate that the restrictions run with the land and may be altered only in conjunction with amendment of this chapter or amendment of specific conditions of approval as provided by this chapter.

2. Provide specific responsibility for management of the sensitive area including, but not limited to, maintenance or replacement of vegetation to assure the long-term viability of a community of native vegetation, and invasive plant control.

3. Provide for the right of the public, and specifically the City of Duvall, to enforce the terms of the restrictions through civil infraction or other legal address.

4. If a site plan has been approved indicating the extent of the sensitive area and buffer and permit conditions, a copy of the site plan together with relevant survey information and permit conditions shall be included in the notice filed.

B. Sensitive areas buffers and setback areas on plats, short plats, site plans and similar land use decisions shall be in the following form:

1. Placed in a tract to provide for permanent protection and integrated management of the sensitive area and buffer. Designation of separate sensitive areas as tracts shall be the preferred method of designation and protection of sensitive areas in plats and site plans. The tract may be:

   a. Held in an undivided interest by each owner of a building lot within the development, the ownership of which shall pass with the ownership of the lot. Responsibility for meeting all requirements of preservation and management shall be designated to an incorporated homeowner's association or other legal entity that assures the ownership and protection of the sensitive area.

   b. Dedicated to the City of Duvall (all stream tracts shall be dedicated to the City of Duvall.

   c. Conveyed to a non-profit land trust, provided the land may not be thereafter transferred to a private party, and provided that if the land trust is dissolved or otherwise fails to perform its functions, ownership and responsibility for management shall devolve to an undivided interest by each owner of a building lot within the development, as provided above.

2. The Director may allow a sensitive area and buffer for Landslide Hazard Areas only to be placed within a protective easement on a parcel with the responsibility for meeting all requirements of preservation and management placed on the owner of the parcel over which the easement is placed. This means of designation shall be used in cases where the size and the ecological functions of the Landslide Hazard Area do not require coordinated management or where formation of an incorporated homeowner's association or other legal entity for management is found to be impractical because of the limited number of lots, or where ownership and management by the City, a qualified special district or a land trust is found to be impractical. This alternative generally will be limited to sensitive areas and buffers of less than 20,000 square feet and developments of fewer than ten (10) parcels, or commercial or multi-family development.

C. This notice on title shall not be required for a development proposal by a public agency or public or private utility within a right-of-way or easement for which they do not have fee-simple title.

D. The applicant shall submit proof that the notice, dedication or easement has been filed for public record before the City shall approve any final plat or final site plan for such site. The notice shall run with the land and failure to provide such notice to any purchaser prior to transferring any interest in the property shall be a violation of this section.

14.42.110 Temporary marking, permanent survey marking fencing and signs

A. Temporary Marking. Prior to commencing construction activities on a development site, the applicant shall mark, as required by the Director, sensitive areas in a highly visible manner, such as through the use of construction fencing. These areas must remain so marked until all development proposal activities on the site are completed.

B. Silt fences and other temporary erosion and sediment control measures shall be installed and maintained on the site as determined to be necessary by the Director and the Public Works Director.

C. Survey Markers. Permanent survey stakes using iron or cement markers as established by current survey standards shall be set delineating the boundary between adjoining property and the sensitive area tracts.

D. Signs. The boundary between a sensitive area tract and adjacent land shall be identified using a permanent signs in a design as approved by the City.

E. Permanent Fencing. The boundary between a sensitive area and adjacent rights-of-way/property shall be delineated with a peeler pole fence as set out in Figure30 located in DMC 14.34.060; except that when a buffer is reduced in accordance with this chapter, a higher fence providing more of a barricade may be required by the Director.

14.42.120 Building Setbacks

A. Buildings and other structures shall be set back a distance of ten (10) feet from the edges of all sensitive area buffers.

B. The Director may modify the building setback required for sensitive area buffers based on specific development plans that do not disturb sensitive areas.

C. The following uses are allowed in the building setbacks required for sensitive area buffers:

1. Native landscaping, including retaining walls less than 30 inches high provided construction of the retaining wall does not alter the buffer or sensitive area;

2. Uncovered decks;

3. Building overhangs not exceeding 2 feet;

4. Impervious surfaces such as driveways, parking lots, roads, and patios provided that such surfaces conform to the applicable water quality standards and that construction equipment does not enter the buffer or sensitive area;

5. Clearing and grading not exceeding 30 inches of cut or fill (pre development elevation) to facilitate the construction of DMC 14.42.120.C.1-4.

D. Unless specified otherwise in the sensitive areas regulations, no building shall be setback less than 10 feet from the edge of the sensitive area.

14.42.130 Mitigation

A. Mitigation measures shall be implemented to protect sensitive areas and buffers from alterations occurring on all or portions of a site being developed. The mitigation measures required in DMC 14.42.130B.-E shall be implemented in conjunction with other applicable mitigation requirements outlined in the subsequent sections of this chapter.

B. For purposes of this chapter, mitigation means the use of the following actions that are listed in descending order of preference:

1. Avoiding the impact all together by not taking a certain action or parts of an action;

2. Minimizing impact by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impact;

3. Rectifying the impact by repairing, rehabilitating or restoring the sensitive areas;

4. Reducing or eliminating the impact over time by prevention and maintenance operations;

5. Compensating for the impact by replacing, enhancing or providing substitute areas and environments and replace the ecological processes and functions of the resource;

6. Monitoring the impact and taking appropriate corrective measures.

C. Mitigation Plan. A mitigation plan shall be required for the design, implementation, maintenance and monitoring of mitigation. A plan shall provide the following, in addition to criteria for the specific sensitive areas provided below:

1. A description and evaluation of any sensitive areas that could be altered by the proposed development, including evaluation of ecological processes and functions based on best available science and detailed field assessment of the affected resources.

2. A description and scaled drawings of the proposed mitigation activities including, but not limited to, clearing, grading/excavation, drainage alterations, planting, invasive plant management, installation of habitat structures, irrigation, and other site treatments.

3. A description of the ecological functions and values that the proposed alteration may affect and of the specific ecological functions and values the proposed mitigation area(s) shall provide,

4. A description of required or recommended mitigation ratios and an assessment of factors that may affect the success of the mitigation program.

5. Specific measurable performance standards that the proposed mitigation action(s) shall achieve together with a description of how the mitigation action(s) will be evaluated and monitored to determine if the performance standards are being met.

6. A description of potential courses of action, and any corrective measures to be taken if monitoring or evaluation indicates that project performance standards are not being met.

7. Cost estimates for the installation of the mitigation program, monitoring, and maintenance if project performance standards are not being met.

D. A performance assurance shall be provided to guarantee installation, monitoring and performance of mitigation actions.

1. The applicant shall post a mitigation surety in the amount of one hundred and twenty-five percent (125%) of the estimated cost of the uncompleted actions or the estimated cost of restoring the functions and values of the sensitive area that are at risk, whichever is greater. The surety shall be based on an itemized cost estimate of the mitigation activity including clearing and grading, plant materials, plant installation, irrigation, weed management, monitoring, adaptive management, and other costs.

2. The surety shall be in the form of an assignment of funds or other means approved by the Director.

3. Surety authorized by this section shall remain in effect until the Director determines, in writing, that the performance standards of the mitigation action(s) have been met. Surety shall generally be held for a period of five (5) years to ensure that the required mitigation has been fully implemented and demonstrated to function, and may be held for longer periods when necessary A surety for construction may be reduced after initial completion in an amount not to exceed the cost of monitoring plus not less than 25 percent (25%) of the construction cost plus 100% of the cost of irrigation, maintenance, and adaptive management

4. The Director may return up to 50 % of the surety following the first year of monitoring provided that the year 1 performance standards are met and the risk of subsequent failure is considered low.

5. Depletion, failure, or collection of surety funds shall not discharge the obligation of an applicant or violator to complete required mitigation, maintenance, or monitoring.

6. Public development proposals shall be relieved from having to comply with the bonding requirements of this section if public funds have previously been committed for mitigation, maintenance, or monitoring.

C. Mitigation Banking. The Director may approve mitigation banking as a form of compensatory mitigation for wetland and fish and wildlife habitat conservation area impacts when the provisions of this chapter require mitigation and when it is clearly demonstrated that the use of a mitigation bank will provide equivalent or greater replacement of sensitive area functions and values when compared to conventional on-site mitigation, provided that all of the following criteria are met:

1. Banks shall only be used when they provide significant ecological benefits including long-term conservation of sensitive areas, important species, habitats and/or habitat linkages, and when they are consistent with the City's Comprehensive Plan and create a viable alternative

to the piecemeal mitigation for individual project impacts to achieve ecosystem-based conservation goals.

2. The bank shall be established in accordance with the Washington State Draft Mitigation Banking Rule WAC 173-700 or as revised, and RCW 90.84 and the federal mitigation banking guidelines as outlined in the Federal Register Volume 60. No 228, November 28, 1995. These guidelines establish the procedural and technical criteria that banks must meet to obtain state and federal certification.

3. Preference shall be given to mitigation banks that implement restoration actions that have been identified formally by an adopted Shoreline Restoration Plan, watershed planning document prepared and adopted pursuant to RCW 90.82, a Salmonid Recovery Plan or project that has been identified on the Salmon Recovery Board Habitat Project List or by the Washington Department of Fish and Wildlife as essential for fish and wildlife habitat enhancement.

4. Banks shall only be used after the Director has determined that there are no viable options for replacement of on- or off-site mitigation in Duvall.

14.42.140 Enforcement

A. The Director or its designee shall have a right to enter upon any property at reasonable times and to make such inspections as are necessary to determine compliance with the provisions of this chapter or the conditions imposed pursuant to this chapter. The Director shall follow the following steps prior to entering upon private property:

1. Phone the property owner/developer if number known;
2. Knock on the door of the property owner;
3. If the violation is not an imminent threat to the environment or if it is not occurring at the time, use enforcement process set out in DMC 2.24;
4. If violation is an imminent threat to the environment or if it is in process, or there is a complaint that a violation is in process, City staff has the right to enter the property to document the actions in accordance with DMC 2.24

B. The Director is further authorized to take such actions as may be necessary to enforce the provisions of this chapter including but not limited to the civil infraction, abatement and criminal penalties provided in DMC 14.02.140.

C. The City's enactment or enforcement of this chapter shall not be construed for the benefit of any individual person or group of persons other than the general public.

14.42.150 Administrative Rules.

The Director shall have the authority to adopt administrative rules as deemed necessary consistent with the provisions of this chapter and that are necessary for the implementation of sensitive area regulations. Such administrative rules shall be reviewed by the Mayor.

14.42.200 Wetlands - Designation, Rating, and Mapping

A. Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Swamps, marshes, bogs, and wet meadows/pastures are examples of wetlands. Some riparian areas adjacent to streams are also wetlands.

B. Wetlands shall be identified in accordance with the requirements of RCW 36.70A.175. Unless otherwise provided for in this chapter, all areas within the City meeting the criteria in the *Washington State Wetlands Identification and Delineation Manual*, (Ecology Publication 96-94) or the US Army Corps of Engineers Wetlands Delineation Manual, 1987 Edition and corresponding guidance letters; regardless of any formal identification, are hereby designated sensitive areas and are subject to the provisions of this chapter.

C. The approximate location and extent of known or suspected wetlands are shown on the City's sensitive area maps. Other, unmapped wetlands may exist within the City. These maps are to be used as a guide and do not provide a definitive sensitive area designation.

D. Wetlands shall be rated based on categories that reflect the functions and values of each wetland. Wetland categories shall be based on the criteria provided in the Washington State Wetland Rating System for Western Washington, revised April 2004 (Ecology Publication #04-06-025). These categories are generally defined as follows:

1. Category I Wetlands. Category I wetlands are those wetlands of exceptional value in terms of protecting water quality, storing flood and storm water, and/or providing habitat for wildlife as indicated by a rating system score of 70 points or more. These are wetland communities of infrequent occurrence that often provide documented habitat for sensitive, threatened or endangered species, and/or have other attributes that are very difficult or impossible to replace if altered.

2. Category II Wetlands. Category II wetlands have significant value based on their function as indicated by a rating system score of between 51 and 69 points. They do not meet the criteria for Category I rating but occur infrequently and have qualities that are difficult to replace if altered.

3. Category III Wetlands. Category III wetlands have important resource value as indicated by a rating system score of between 30 and 50 points.

4. Category IV Wetlands. Category IV wetlands are wetlands of limited resource value as indicated by a rating system score of less than 30 points. They typically have vegetation of similar age and class, lack special habitat features, and/or are isolated or disconnected from other aquatic systems or high quality upland habitats.

14.42.210 Wetland Buffer Standards

A. Wetland Buffer Widths

The Director shall have the authority to require buffers from the edges of all wetlands in accordance with the following:

1. Wetland buffers shall be established to protect the integrity, functions and values of the wetland. Wetland buffers shall be measured perpendicular to the wetland edge on all sides as marked in the field. Buffers shall not include areas that are functionally and effectively disconnected from the wetland by a road or other substantially developed surface of sufficient width and with use characteristics such that buffer functions are not provided.[1]

2. The buffer standards required by this chapter presume the existence of a dense vegetation community in the buffer adequate to protect the wetland functions and values. When a buffer lacks adequate vegetation, the Director may require buffer planting or enhancement, and/or deny a proposal for buffer reduction or buffer averaging.

3. Most wetlands in Duvall are expected to have moderate to low habitat function and buffers shall be sufficient to protect habitat functions. The standard buffer width for Category I, II and III wetlands determined to have low to moderate habitat function scores shall be determined on a graduated scale based the table below. The applicant shall determine the habitat functions score using the 2004 Department of Ecology Washington State Wetland Rating System for Western Washington habitat functions worksheet (Ecology Publication #04-06-025):

1 The Western WA GMHB excluded roads as functionally isolating buffers as a general case, without findings that they truly interrupt buffer functions, in. ICCGMC v. Island County 98-2-0023 (Final Decision and Order, 6-2-99)E

Duvall Standard Wetland Buffer Widths Using a Graduated Scale Based on the Habitat Functions Score										
Points for Habitat Function from Wetland Rating Form	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
	Low Habitat Score	Moderate Habitat Score								
Category I, II and III wetlands	60’	80’	80’	100’	100’	120’	120’	140’	140’	150’

4. For Category I, II or III wetlands with high habitat functions as indicated by a score of 29 points or more on the habitat functions worksheet, the buffer width shown above will be increased by an additional 20 feet for each additional habitat rating point.
5. The standard buffer width for Category IV wetlands shall be 50 feet.
6. Wetlands within twenty-five (25) feet of slopes at an inclination of forty (40) percent or more with a vertical elevation change of at least ten (10) feet, shall have the following minimum buffers:
    a. The greater of the minimum for that wetland class, Landslide Hazard Area, or twenty-five (25) feet beyond the top, toe and along side of the slope.
    b. The Development Review Committee (DRC) may recommend buffer averaging instances where it will provide additional resource protection provided that the total area on-site contained in buffers remains the same.

B. Wetland Buffer Reduction

The Director shall have the authority to reduce the standard buffer widths when the applicant demonstrates through a sensitive area study to the satisfaction of the Director that all the following criteria are met:

1. The buffer reduction shall not adversely affect the functions and values of the adjacent wetlands, meaning that:
    a. The ability of the wetland to support wetland-adapted and/or wetland-dependent wildlife will not be impaired;
    b. The ability of the wetland to perform water quality functions such as storage/treatment/removal of pollutants will not be impaired; and
    c. The ability of the wetland to store runoff and provide flood protection will not be impaired;
2. The buffer of a Category I or II wetland can be reduced by twenty-five (25) percent of the standard buffer if criteria in DMC 14.42.210.B are met.
3. The buffer of a Category III or IV wetland shall not be reduced to less than fifty (50) percent of the standard buffer.
4. The applicant implements all reasonable measures to reduce the adverse effects of adjacent land uses and ensure no net loss of wetland functions and values in conjunction with a

sensitive area study and mitigation plan. The specific measures that shall be implemented include:

a. During site construction:

i. Install and maintain adequate erosion and sediment control devices to prevent water quality impacts;

ii. Mitigate the noise impacts associated with equipment use during sensitive nesting or breeding times as needed to minimize impacts on wildlife in the immediate vicinity of the site;

iii. Install orange construction fencing around all sensitive areas that are not proposed to be disturbed to prevent inadvertent damage; and

iv. Providing temporary stormwater detention and treatment.

b. The development shall be designed and operated so that the following measures are met:

i. Lights shall be directed away from the wetland and buffer;

ii. Facilities that generate substantial noise (such as some manufacturing, industrial, recreational facilities, loading docks, garbage pickup areas) shall be located away from the wetland and buffer;

iii. Vegetation maintenance plans and integrated pest management plans shall be established that include covenants or other enforcement mechanisms that limit use of fertilizers and pesticides within the wetland buffer width.

iv. Runoff into the buffer shall be infiltrated or treated, detained and dispersed into the buffer;

v. Fencing around the buffer shall be constructed to delineate the buffer edge and signs shall be posted at the outer edge of the sensitive area or buffer to clearly indicate the location of the sensitive area;

vi. The buffer shall be planted with native vegetation appropriate for the region; and

vii. Low Impact Development techniques shall be used where appropriate.

C. Standards - Wetland Buffer Averaging

The Director has the authority to average wetland buffer widths on a case-by-case basis when the applicant demonstrates through a sensitive area study to the satisfaction of the Director that all the following criteria are met:

1. The buffer averaging does not reduce the functions or values of the wetland as described in 14.42.210 (B)(1).
2. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer, and all increases in buffer dimension for averaging must be generally parallel to the wetland boundary;
3. The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation;
4. The buffer of a Category I or II wetland may be reduced by up to twenty-five percent (25%) of the required buffer if the criteria in DMC 14.42.210.C are met;
5. The buffer of a Category III or IV wetland may be reduced by up to fifty (50) percent of the required buffer.
6. The applicant implements all reasonable measures to reduce the adverse effects of adjacent land uses and ensure no net loss of wetland functions and values in conjunction with a sensitive area study and mitigation plan. The specific measures that shall be implemented include, but are not limited to, those in DMC 14.42.210.B.4.

E. Standards - Wetland Buffer Increases

The Director shall have the authority to increase the width of the standard buffer width on a case-by-case basis, based on a sensitive area study, when a larger buffer is required to protect sensitive habitats as outlined in DMC 14.42.350, Other Fish and Wildlife Habitat Conservations Areas, or such increase is necessary to:

1. Prevent windthrow damage; or

3. Maintain viable populations of species such as herons and other priority or fish and wildlife; or

4. Protect wetlands or other sensitive areas from landslides, erosion or other hazards.

14.42.220 Wetland Alterations

Wetlands and associated buffer areas generally shall be preserved in a state that provides for a native vegetation community providing a range of ecological processes and functions. Wetlands and their buffers generally may not be altered except for the specific allowed uses enumerated below or for restoration or enhancement of impaired functions. Compensatory mitigation shall be provided for all adverse impacts to wetlands that cannot be avoided, and the amount and degree of alteration shall be limited to the minimum needed to accomplish the project purpose. Altered wetlands and buffers shall be restored to a natural state wherever feasible. Alterations shall adhere to applicable City, State, and Federal requirements and permitting including, but not limited to, US Army Corps of Engineers and the Department of Ecology. The following activities may be permitted in wetlands and/or wetland buffers when all reasonable measures have been taken to avoid adverse effects on wetland functions and values:

A. Developments that meet the reasonable use standards as set forth in DMC 14.42.070.

B. Surface water discharge into Category II, III, and IV wetlands and their buffers and when the discharge is designed to minimize physical, hydrologic and ecological impacts to the wetland. Discharge of clean roof runoff is allowed provided that the roof does not contain zinc strips;

C. Utility lines in Category II, III, and IV wetlands and their buffers and/or Category I wetland buffers when no feasible conveyance alternative is available and shall be designed and constructed to minimize physical, hydrologic and ecological impacts to the wetland, and meets all of the following:

1. The utility line is located as far from the wetland edge as possible and in a manner that minimizes disturbance of soils and vegetation.

2. Clearing, grading, and excavation activities are limited to the minimum necessary to install the utility line and the area is restored following utility installation.

3. Buried utility lines shall be constructed in a manner that prevents adverse impacts to subsurface drainage. This may include the use of trench plugs or other devices as needed to maintain hydrology.

D. Public roads, bridges, and trails in Category II, III, and IV wetlands and their buffers and/or Category I wetland buffers when no feasible alternative alignment is available and the road, bridge or trail is designed and constructed to minimize physical, hydrologic and ecological impacts to the wetland, including placement on elevated structures as an alternative to fill, where feasible.

E. Access to private development sites may be permitted to cross Category II, II, or IV wetlands or their buffers provided there are no feasible alternative alignments. Alternative access shall be pursued to the maximum extent feasible, including through the provisions of RCW 8.24. Exceptions or deviations from technical standards for width or other dimensions, and specific construction standards to minimize impacts may be specified, including placement on elevated structures as an alternative to fill, if feasible.

F. Storm water management facilities limited to detention / treatment ponds, media filtration facilities, and infiltration basins, within the outer fifty percent (50%) of the standard Category II, III or IV wetland buffer, provided that:

1. Construction of the storm water facility does not displace or impact a forested buffer community;

2. There is no other feasible location for the storm water facility and the facility is located, constructed, and maintained in a manner that minimizes adverse effects on the buffer and adjacent sensitive areas;

3. The storm water facility is designed in accordance with City stormwater requirements and generally resembles natural wetlands. The facility shall not contain access roadways or retaining walls or slopes in excess of a 3:1 within the buffer, and the discharge must meet water quality standards;

4. Low impact development approaches have been considered and implemented to the maximum extent feasible.

G. Storm water conveyance or discharge facilities such as dispersion trenches, level spreaders, and outfalls may be permitted within a Category II, III, or IV wetland buffer when all of the following are met:

1. Due to topographic or other physical constraints there are no feasible locations for these facilities in the outer buffer area or outside the buffer.

2. The discharge is located as far from the wetland edge as possible and in a manner that minimizes disturbance of soils and vegetation.

3. The discharge outlet is located in an appropriate location and is designed to prevent erosion and promote infiltration.

H. Passive recreation facilities that are part of a non motorized trail system or environmental education program including walkways, wildlife viewing structures, and trails, in wetland buffers provided that all of the following criteria are met:

1. Trails shall not exceed 4 feet in width and shall be made of pervious material where feasible.

2. The trail or facility is located in the outer fifty percent (50%) of the standard buffer area where feasible.

3. The trail is constructed and maintained in manner that minimizes disturbance of the buffer and associated sensitive areas.

I. The Director will allow alteration or displacement of Category IV wetlands less than two thousand (2,000) square feet when all of the following criteria are met as documented in a wetland sensitive area study and mitigation plan:

1. The wetland does not provide significant suitable breeding habitat for native amphibian species. Suitable breeding habitat may be indicated by adequate and stable seasonal inundation, presence of thin-stemmed emergent vegetation, and clean water;

2. The wetland is not located within a fish and wildlife habitat conservation area as defined in Section 14.42.350 of this chapter;

3. The wetland is not located within a floodplain and/or not associated with a shoreline of the state as defined by the City's Shoreline Master Program (DMC 14.22).

4. The wetland does not provide significant wildlife water quality, or water storage functions that would be difficult to replicate.

5. Alterations or displacement shall adhere to applicable City, State, and Federal requirements and permitting including, but not limited to, US Army Corps of Engineers and the Department of Ecology.

J. Category IV Wetlands. Activities and uses that result in unavoidable impacts may be permitted in Category IV wetlands and associated buffers in accordance with an approved sensitive area report and mitigation plan, and only after all impact avoidance and minimization measures have been evaluated consistent with DMC 14.42.130.C and the applicant demonstrates that the proposed activity is the only reasonable alternative that will accomplish the applicant's objectives consistent with the sensitive area regulations and meet the criteria in DMC 14. 42.220.I.1-4. Full compensation for the acreage and loss of functions for the wetland and the buffers shall be provided under the requirements established in DMC 14.42.240. Alterations shall adhere to applicable City, State, and Federal requirements and permitting including, but not limited to, US Army Corps of Engineers and the Department of Ecology.

K. Category III Wetlands. For Category III wetlands, the following standard shall apply:

1. Where wetland fill is proposed, it is presumed that an alternative development location exists; activities and uses shall be prohibited unless the applicant can demonstrate that:

   a. The basic project purpose cannot reasonably be accomplished on another site or sites in the general region while still successfully avoiding or resulting in less adverse impact on a wetland; and

   b. All on-site alternative designs that would avoid or result in less adverse impact on a wetland or its buffer, such as a reduction in the size, scope, configuration or density of the project, are not feasible.

2. Full compensation for the loss of acreage and functions of wetland and buffers shall be provided under the terms established under mitigation ratios set out in DMC 14.42.240.

3. Wetland filling activities shall adhere to applicable City, State, and Federal requirements and permitting including, but not limited to, US Army Corps of Engineers and the Department of Ecology.

14.42.230 Wetland Review and Reporting Requirements

A. The Director shall require a site evaluation (field investigation) by a qualified professional to determine whether or not a regulated wetland is present and if so, its relative location in relation to the proposed project area on site. If the Director determines that a wetland is likely to be present, the Director shall require a sensitive area study pursuant to DMC 14.42.060. If no regulated wetlands are present, then the wetland review will be considered complete.

B. A sensitive area study (wetland assessment study) describes the characteristics of the subject property and adjacent areas. The assessment shall be completed pursuant to DMC 14.42.060 and include the following:

1. Existing physical features of the site including buildings, fences, and other structures, roads, parking lots, utilities, water bodies, etc;

2. Determination of the wetland category and standard wetland buffers as set forth in pursuant to DMC 14.42.200;

3. Field identification and delineation of wetland boundaries. For on-site wetlands, the assessment shall include the dominant and subdominant plant species; soil type, color and texture; sources of hydrology (patterns of surface and subsurface water movement, precipitation, etc), topography, and other pertinent information;

4. Identification of sensitive areas and buffers within three hundred (300) feet of the site and an estimate of the approximate acreage for each. The minimum assessment shall include a windshield survey;

5. A detailed description of the effects of the proposed development on wetland and buffer function and value, including the area of direct wetland disturbance; area of buffer reduction or averaging including documentation that functions and values will not be adversely affected by the reduction or averaging; effects of storm water management; proposed hydrologic alteration including changes to natural drainage or infiltration patterns; effects on fish and wildlife species and their habitats; clearing and grading impacts; temporary construction impacts; and effects of increased noise, light or human intrusion.

6. A mitigation plan pursuant to DMC 14.42.130.C, and DMC14.42.240 if applicable.

14.42.240 Wetland Mitigation

Activities that adversely affect wetlands and/or wetland buffers shall include mitigation sufficient to achieve no net loss of wetland function and values in accordance with DMC 14.42.130 and this section.

A. Wetland alterations. Compensatory mitigation shall be provided for all wetland alteration and shall re-establish, create, rehabilitate, enhance, and/or preserve equivalent wetland functions and values. Compensation for wetland alterations shall occur in the following order of preference:

1. Re-establishing wetlands on upland sites that were formerly wetlands.

2. Rehabilitating wetlands for the purposes of repairing or restoring natural and/or historic functions.

3. Creating wetlands on disturbed upland sites such as those consisting primarily of nonnative, invasive plant species.

4. Enhancing significantly degraded wetlands.

5. Preserving Category I or II wetlands that are under imminent threat, provided that preservation shall only be allowed in combination with other forms of mitigation and when the Director determines that the overall mitigation package fully replaces the functions and values lost due to development.

B. Mitigation Ratios for wetland alterations under DMC 14.42.220.A-I. Compensatory mitigation for wetland alterations shall be based on the wetland category and the type of mitigation activity proposed. The replacement ratio shall be determined according to the ratios provided in the table below, provided that replacement ratio for preservation shall be determined by the Director on a case-by-case basis. The created, re-established, rehabilitated, or enhanced wetland area shall at a minimum provide a level of function equivalent to the wetland being altered and shall be located in an appropriate landscape setting.

Affected Wetland	**Wetland Mitigation Type and Replacement Ratio***			
Category	**Creation**	**Re-establishment**	**Re-habilitation**	**Enhancement Only**
Category IV	1.5:1	1.5:1	2:1	3:1
Category III	2:1	2:1	3:1	4:1
Category II	3:1	3:1	4:1	6:1
Category I	No Alteration Allowed			
*Ratio is the replacement area: impact area.				

C. Mitigation Ratios for wetland alterations under DMC 14.42.220.J and K. Compensatory mitigation for wetland alterations shall be based on the wetland category and the type of mitigation activity proposed. The replacement ratio shall be determined according to the ratios provided in the table below, provided that replacement ratio for preservation shall be determined by the Director on a case-by-case basis. The created, re-established, rehabilitated, or enhanced wetland area shall at a minimum provide a level of function equivalent to the wetland being altered and shall be located in an appropriate landscape setting.

1.

Affected Wetland	Wetland Mitigation Type and Replacement Ratio*				
Category	**Re-Establishment or Creation**	**Re-habilitation**	**Re-Establishment or Creation (R/C) and Rehabilitation (RH)**	**Re-Establishment or Creation (R/C) and Enhancement (E)**	**Enhancement (E)Only**
Category IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1
Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1

2. The Director shall have the authority to adjust the replacement ratios when one or more of the following apply:

a. When a combination of mitigation approaches is proposed, the area of altered wetland shall be replaced at a 1:1 ratio through re-establishment or creation, and the remainder of the area needed to meet the ratio can be replaced by enhancement at a 2:1 ratio.

b. When the project proponent has a demonstrated ability, based on past performance, to successfully design, construct, monitor and maintain wetland mitigation projects/sites.

c. When meeting the required ratios would adversely affect other natural and valuable characteristics of an otherwise appropriate and suitable mitigation site.

D. Compensation for wetland buffer impacts shall occur at a minimum 1:1 ratio. Compensatory mitigation for buffer impacts shall include enhancement of degraded buffers by planting native species, removing structures and impervious surfaces within buffers, and other measures.

E. Mitigation banks shall not be subject to the replacement ratios outlined in the replacement ratio table in DMC 14.42.240.B, but shall be determined as part of the mitigation banking agreement and certification process.

F. Buffers. Replacement wetlands established pursuant to these mitigation provisions shall have adequate buffers to ensure their protection and sustainability. The buffer shall be based on the category of the re-established, created, rehabilitated, enhanced, or preserved wetland in DMC 14.42.210, provided that the Director shall have the authority to approve a smaller buffer when existing site constraints (such as a road) prohibit attainment of the standard buffer.

G. Adjustment of Ratios set out in DMC 14.42.240.B.1. The Director shall have the authority to adjust these ratios when a combination of mitigation approaches is proposed. In such cases, the area of altered wetland shall be replaced at a 1:1 ratio through re-establishment or creation, and the remainder of the area needed to meet the ratio can be replaced by enhancement at a 2:1 ratio. For example, impacts to 1 acre of a Category II wetland requiring a 3:1 ratio for creation can be compensated by creating 1 acre and enhancing 4 acres (instead of the additional 2 acres of creation that would otherwise be required).

H. Location. Compensatory mitigation shall be provided on-site or a city approved off-site location that will provide the greatest ecological benefit and have the greatest likelihood of success, provided that mitigation occurs as close as possible to the impact area and within the same sub basin as the permitted alteration. This provision may be waived upon demonstration through a watershed- or landscape-based analysis that mitigation within an alternative sub basin of the same watershed would have greater ecological benefit. Mitigation shall occur within Water Resource Inventory Area 7 (WRIA).

I. Protection. All mitigation areas shall be permanently protected and managed to prevent degradation and ensure protection of sensitive area functions and values into perpetuity. Permanent protection shall be achieved through deed restriction or other protective covenant in accordance with DMC 14.42.100.

J. Timing. Mitigation activities shall be timed to occur in the appropriate season based on weather and moisture conditions and shall occur as soon as possible after the permitted alteration.

14.42.250 Wetland Mitigation Plan

A. In addition to meeting the requirements of DMC 14.42.130, a compensatory mitigation plan for wetland and wetland buffer impacts shall meet the following requirements:

1. The plan shall be based on applicable portions of the Washington State Department of Ecology's Guidelines for Developing Freshwater Wetland Mitigation Plans and Proposals 2006 (Ecology Publication # 06-06-011b), or other appropriate guidance document that is consistent with best available science.

2. The plan shall contain sufficient information to demonstrate that the proposed activities are logistically feasible, constructible, ecologically sustainable, and likely to succeed. Specific information to be provided in the plan shall include:

a. The rationale for site selection;

b. General description and scaled drawings of the activities proposed including, but not limited to, to clearing, grading/excavation, drainage alterations, planting, invasive plant management, installation of habitat structures, irrigation, and other site treatments associated with the development activities and proposed mitigation action(s);

c. A description of the ecological functions and values that the proposed alteration will affect and the specific ecological functions and values the proposed mitigation area(s) shall provide, together with a description of required or recommended mitigation ratios and an assessment of factors that may affect the success of the mitigation program;

d. Overall goals of the plan, including wetland function, value, and acreage;

e. Description of baseline (existing) site conditions including topography, vegetation, soils, hydrology, habitat features (i.e., snags), surrounding land use, and other pertinent information;

f. Field data confirming the presence of adequate hydrology (surface and/or groundwater) to support existing and compensatory wetland area(s);

g. Nature of mitigation activities, including area of restored, created, enhanced and preserved wetland, by wetland type;

h. Detailed grading and planting plans showing proposed post-construction topography; general hydrologic patterns; spacing and distribution of plant species, size and type of proposed planting stock, watering or irrigation plans, and other pertinent information;

g. A description of site treatment measures including invasive species removal, use of mulch and fertilizer, placement of erosion and sediment control devices, and best management practices that will be used to protect existing wetlands and desirable vegetation.

h. A demonstration that the site will have adequate buffers sufficient to protect the wetland functions into perpetuity.

i. Specific measurable performance standards that the proposed mitigation action(s) shall achieve together with a description of how the mitigation action(s) will be

evaluated and monitored to determine if the performance standards are being met and identification of potential courses of action, and any corrective measures to be taken if monitoring or evaluation indicates that project performance standards are not being met. The performance standards shall be tied to and directly related to the mitigation goals and objectives.

j. Cost estimates for the installation of the mitigation program, monitoring, and potential corrective actions if project performance standards are not being met.

14.42.260 Wetland Mitigation Monitoring

A. All compensatory mitigation projects shall be monitored for a period necessary to establish that performance standards have been met, but generally not for a period less than five (5) years. The Director shall have the authority to extend the monitoring period and require additional monitoring reports for up to ten (10) years when any of the following conditions apply:

1. The project does not meet the performance standards identified in the mitigation plan.
2. The project does not provide adequate replacement for the functions and values of the impacted sensitive area.
3. The project involves establishment of forested plant communities, which require longer time for establishment.
4. Reports shall be submitted annually for the first three (3) years following construction and at the completion of years 5, 7, and 10 if applicable to document milestones, successes, problems, and contingency actions of the compensatory mitigation.

B. Mitigation Surety

A performance assurance shall be provided to guarantee installation, monitoring, maintenance and performance of mitigation actions in accordance with Section 14.42.130.C, provided that the time period for the surety may be extended for the length of the monitoring period.

C. Monitoring Reports

Mitigation monitoring reports shall include information sufficient to document and assess the degree of mitigation success or failure as defined by the performance standards contained in the approved mitigation plan. Information to be provided in annual monitoring reports shall include the following:

1. Number and location of vegetation sample plots used to document compliance with performance standards;
2. Measurements of the percent survival of planted material, plant cover, stem density, presence of invasive species, or other attributes;
3. For sites that involve wetland creation, re-establishment or rehabilitation, hydrologic observations of soil saturation/inundation as needed to demonstrate that a site meets the wetland hydrology criterion;
4. Representative photographs of the site;
5. A written summary of overall site conditions and recommendations for maintenance and replacement actions if needed;
6. Other information that a qualified professional recommends to be included and that the Director deems necessary to ensure the success of the site.

14.42.300 Fish and Wildlife Habitat Conservation Areas - Designation, Mapping and Classification

A. Fish and wildlife habitat conservation areas are those areas identified as being of critical importance to the maintenance of certain fish, wildlife, and/or plant species. Theses areas are typically identified either by known point locations of specific species (such as a nest or den) or by

habitat areas or both. All areas within the City meeting these criteria are hereby designated sensitive areas and are subject to the provisions of this chapter.

B. The approximate location and extent of previously identified fish and wildlife habitat conservation areas are shown on the City's sensitive area maps. Other unmapped habitats and/or species occurrences may exist in the City. These maps are to be used as a guide and do not provide a definitive sensitive area determination.

C. For purposes of this chapter, fish and wildlife habitat conservation areas shall include all of the following:

1. Streams.
2. Naturally occurring ponds under 20 acres in size.
3. Natural Area Preserves and natural resource conservation areas.
4. Areas with which species listed under the Federal Endangered Species Act have a primary association.
5. State priority habitats and areas associated with state priority species.

D. In addition to the species and habitats identified in C above, the City may designate additional species and/or habitats of local importance as follows:

1. In order to nominate an area or a species to the category of Locally Important an individual or organization must
    a. Demonstrate a need for special consideration based on:
        i. Declining population,
        ii. High sensitivity to habitat manipulation, or
        iii. Demonstrated commercial, recreational, cultural, or other special value;
    b. Propose relevant management strategies considered effective and within the scope of this chapter; and
    c. Provide a map showing the species or habitat location(s).
2. Submitted proposals shall be reviewed by the City and may be forwarded to the State departments of Fish and Wildlife, Natural Resources, and/or other local, State, Federal, and/or Tribal agencies or experts for comments and recommendations regarding accuracy of data and effectiveness of proposed management strategies.
3. If the proposal is found to be complete, accurate, and consistent with the purposes and intent of this chapter, the City Council will hold a public hearing to solicit comment. Approved nominations will become designated locally important habitats or species and will be subject to the provisions of this chapter.

14.42.310 Fish and Wildlife Habitat Conservation Areas – Streams

A. Streams shall be designated according to the following criteria:

1. Streams under the jurisdiction of the Shoreline Management Act: Shoreline streams are those streams identified and regulated as shorelines of the state as defined by WAC 173-18-310 and/or designated in the Duvall Shoreline Master Program, DMC 14.78. The Snoqualmie River is the only designated shoreline stream in Duvall.
2. Other fish bearing streams that do not meet the definition of shorelines of the state but have known or potential use by anadromous or resident fish species. The Director shall make determinations of known or potential fish use in accordance with Best Available Science and shall take into consideration factors such as species life cycle requirements, habitat suitability, channel gradient, presence or lack of barriers, and a reasoned evaluation of current, historic, and potential fish use by a qualified professional.

3. Other non-salmon bearing streams that do not meet the definition of shorelines of the state.

4. Non-fish bearing streams are those streams that have no known or potential use by anadromous or resident fish based on the stream character, hydrology and gradient, provided that human-made barriers shall not be considered a limit on fish use except when the Director makes the following findings:

    a. The human-made barrier is located beneath public infrastructure that is unlikely to be replaced and it is not feasible to remove the barrier without removing the public infrastructure, provided that the infrastructure is not identified for future modification in the capital facility or other plans of the public agency responsible for the infrastructure, and the facility will not exceed its design-life within the foreseeable future;

    b. The human-made barrier is located beneath one or more dwelling units and it is not feasible to remove the barrier without removing the dwelling unit, the dwelling units are in a single-family zoning district, on a lot or lots not subject to subdivision, and the dwelling units are of a size and condition that removal or substantial remodel is not likely;

    c. The human-made barrier is not identified for removal by a public agency or in an adopted watershed plan.

B. The Director may require a sensitive area study to aid in determining stream classification.

C. The Director shall determine stream type in accordance with Best Available Science by considering known and potential salmonid use. The Director shall take into consideration current, historic, and potential fish use and factors such as species life cycle requirements, habitat suitability, channel gradient, presence or lack of barriers, and type of barrier (manmade or natural) to make a reasoned evaluation. This may include consultation with federal, state and tribal biologists and/or other qualified professionals.

14.42.320 Fish and Wildlife Habitat Conservation Areas - Stream Buffers

The Director shall have the authority to require buffers from the edges of all streams in accordance with the following:

A. Buffers shall be established for activities adjacent to as necessary to protect the integrity, functions and values of the resource. Buffer widths shall reflect the sensitivity of the species or habitat and the type and intensity of the adjacent human use or activity.

B. Buffer Measurement. The standard buffer shall be measured landward horizontally on both sides of the stream from the ordinary high water mark as identified in the field. The required buffer shall be extended to include any adjacent regulated wetland(s), landslide hazard areas and/or erosion hazard areas and required buffers, but shall not be extended across roads or other lawfully established structures or hardened surfaces that are functionally and effectively disconnected from the stream.

C. Standard Buffers. The standard buffer widths required by this section are based on scientific studies of the conditions necessary to sustain ecological functions and values to support anadromous and resident fish and presume the existence of a dense native vegetation community in the buffer zone adequate to protect the stream functions and values at the time of the proposed activity. Buffers shall be measured as follows:

1. Streams under the jurisdiction of the Shoreline Management Act - 150 feet

2. Salmon bearing streams- 100 feet

3. Other fish bearing streams- 75 feet

4. Non-fish bearing streams - 50 feet

5. Non fish-bearing streams in existing subdivisions:

a. Where streams have been placed in separate tracts, buffers will be provided by the tract, provided a minimum dimension of 25 feet from the edge of the stream is provided;

b. Where streams have not been placed in separate tracts, or if a minimum dimension of 25 feet from the edge of the stream is not provided, buffers will meet the dimensional requirements in DMC 14.42.320.B4 unless existing structures are located within the buffer. In that case, the following provisions shall apply:

i. An inner riparian buffer shall be provided with a dense community of native trees, shrubs, and groundcover. The dimension of this buffer shall be a minimum of 15 feet, and may be expanded if sufficient clearance is available between the stream and existing primary structures;

ii. An outer riparian buffer may be provided to extend within 10 feet of an existing primary structure. Within the outer buffer, a maximum of 25 percent of the zone may be used as grass turf; with the balance a dense community of native trees, shrubs, and groundcover.

D. Buffers in conjunction with other sensitive areas. Where other sensitive areas defined in this chapter falls within the stream buffer, the buffer area shall be the most expansive of the buffers applicable to any applicable sensitive area.

E. Performance-based Buffer. The Director shall have the authority to administer the stream buffers in the table below as an alternative to the standard buffers in 14.42.320(C) with the specific written commitment of an applicant and the incorporation in development plans of the specific management measures specified, together with implementation of the measures committed to by the City of Duvall and the applicant shall demonstrate that the performance based buffer is not detrimental to the stream system.

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Snoqualmie River (Class 1) South of UGA, North of Woodinville-Duvall Road	Existing area west of the Snoqualmie Valley Trail	○ Existing boat ramp and recreation uses are permitted and such uses may be maintained and updated to current standards/materials ○ Provide enhancement of the existing steep slope/landslide hazard buffer area by selective planting of native evergreens to more closely replicate native plant communities. ○ Provide additional top-of-slope vegetated setbacks where more detailed geologic field work may identify an erosion or slope failure hazard. ○ Provide fencing to control informal access to the buffer area to avoid a network of informal trails and associated vegetation damage and erosion and to delineate the sensitive area on the west side of the Snoqualmie Valley Trail.

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Snoqualmie River (Class 1) South of Woodinville-Duvall Road, North of NE Stephens Street	Existing area west of the Snoqualmie Valley Trail	○ To the extent possible as determined by the Director, provide a permanent vegetated buffer on the west side of the Snoqualmie Valley Trail, between the Trail and the River. ○ Orient buildings within the Riverside Village Planning area east of the buffer to avoid direct light and glare impacts to the buffer area to the west. ○ Install appropriate vegetation on the west side of the trail as set out in DMC 14.38. ○ Encourage Low Impact Development (LID) Strategies for developments adjacent to the Trail.
Snoqualmie River (Class 1) South of NE Stephens Street to southern city limits	150 feet	○ Provide enhanced permanent vegetated buffer averaging 150 feet within this corridor to provide: ➢ Streambank stability ➢ Sediment filtration ➢ Off-channel habitat ➢ Increased stream shading and stream temperature regulation ➢ Increased (Large Woody Debris) LWD recruitment and habitat diversity ➢ Stable hydrologic regime The buffer may narrow to allow the developed portions of McCormick Park to be maintained/enhanced (beach, small beach park, large park). ○ Plant and maintain a mix of native deciduous and coniferous species and related native understory shrubs. Initial maintenance for control of invasive species will be required. ○ Limit recreation uses to passive recreation including public access trails, river overlooks, beaches, and special events, provided there is control of informal trails and other human use to avoid distress to understory and trees. This may include signing and fencing to keep users on designated trails.

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Thayer Creek (Class 2) West of Trail Embankment	100	○ Provide a permanent minimum vegetated buffer averaging 100 feet within this corridor; this buffer may be increased by up to 150 feet to accommodate mitigation from Reaches 3 and 4. ○ Plant and maintain a mix of native deciduous and coniferous species and native understory. Initial maintenance for control of invasive species will be required. ○ Use of the buffer area for non-intrusive passive recreation should be discouraged due to its width. Formal trails can cross the stream provided that there is adequate fish passage. ○ Provide signing and fencing as appropriate to keep users on designated trails to control informal human use that may distress understory and trees and increase erosion.
Thayer Creek (Class 2) Between Trail Embankment City ownership	100 feet	○ Provide a permanent minimum vegetated buffer averaging 100 feet within this corridor; this buffer may be increased by up to 150 feet to accommodate mitigation from Reaches 3 and 4. ○ Plant and maintain a mix of native deciduous and coniferous species and native understory. Initial maintenance for control of invasive species will be required. ○ Use of the buffer area for non-intrusive passive recreation should be discouraged due to its width. Formal trails can cross the stream provided that there is adequate fish passage. ○ Provide signing and fencing as appropriate to keep users odesignated trails to control informal human use that may distress understory and trees and increase erosion.
Thayer Creek (Class 2) Between City ownership and	Varies, see column to the right	**Right Bank** ○ Provide a permanent vegetated buffer between the stream and the

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Main Street		Main Street right of way. o Manage stormwater runoff from Main Street including flow control and treatment. o Enhance the riparian zone with native trees and shrubs and remove invasive plants along the full length and depth of the individual parcel(s) riparian buffer. o Install fencing, signage, or other suitable measures that prohibit or discourage entrance and disturbance to the stream and buffer area to provide protection of the key aquatic functions. **Left Bank** o Provide a 50-foot buffer and development restrictions within this reach, including: ➢ Enhance the riparian zone with native trees and shrubs and invasive plant removal along the full length and depth of the individual parcel(s) riparian buffer. ➢ Install fencing, signage, or other suitable measures that prohibit or discourage entrance and disturbance to the stream and buffer area to provide protection of the key aquatic functions. o Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. o Provide resources for enhancement of buffer areas in Reach 1 and portions of Reach 2 owned by the City of Duvall, equivalent to the difference between the areas provided in recommended general buffer width of 100 feet and the area within the buffer provided under the standards above. o Encourage Low Impact Development (LID) Strategies
Thayer Creek (Class 2)	50 feet	o Evaluate the necessity of preserving wetlands adjacent to

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Main Street to NE 143rd		the riparian corridor to maintain discharge for baseflow support in low streamflow periods. o Provide a minimum buffer of 50 feet with development restrictions requiring wetland preservation with the following conditions: ➢ Enhance the riparian zone with native trees and shrubs and invasive plant removal along the full length and depth of the riparian buffer, and adjacent wetland. ➢ Install fencing, signage, or other suitable measures that prohibit or discourage entrance and disturbance to the stream and buffer area to provide protection of the key aquatic functions. o Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. o Provide resources for enhancement of buffer areas in Reach 1 and portions of Reach 2 owned by the City of Duvall, equivalent to the difference between the areas provided in recommended general buffer width of 100 feet and the area within the buffer provided under the specific standards above. o Encourage Low Impact Development (LID) Strategies.
Thayer Creek (Class 2) 143rd to Big Rock Road	50 feet	o Remove the fish-passage barrier of the existing farm pond. o Provide a minimum buffer of 50 feet with the following conditions: ➢ Enhance the riparian zone with native trees and shrubs and invasive plant removal along the full length and depth of the riparian buffer. ➢ Install fencing, signage, or other suitable measures that prohibit or discourage entrance and disturbance to the stream and buffer area to

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
		provide protection for stream functions. o Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. o Provide resources for enhancement of buffer areas in Reach 1 and portions of Reach 2 owned by the City of Duvall, equivalent to the difference between the areas provided in recommended general buffer width of 100 feet and the area within the buffer provided under the specific standards above. o Encourage Low Impact Development (LID) Strategies.
Thayer Creek (Class 2) South of Big Rock Road	50 feet	o Provide a buffer of 50 feet. ➢ Enhance the riparian zone with native trees and shrubs and invasive plant removal along the full length and depth of the riparian buffer. ➢ Install fencing, signage, or other suitable measures that prohibit or discourage entrance and disturbance to the stream and buffer area to provide protection for stream functions. o Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. o Encourage Low Impact Development (LID) Strategies.
Coe-Clemons Creek (Class 2) West of Trail Embankment	100 feet	o On the south distributary channel, provide a 100-foot-wide buffer to maintain the off-channel functions of the stream. This buffer may be increased to 150 feet to accommodate mitigation from Reaches 4 through 7 of Coe-Clemmons Creek. o On the north distributary channel, provide a 50-foot-wide buffer. o Plant and maintain a mix of native deciduous and coniferous species and native understory within the

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
		riparian buffer. Initial maintenance for control of invasive species will be required. o Use of the buffer area for non-intrusive passive recreation should be discouraged due to its width. Formal trails can cross the stream provided that there is adequate fish passage. o Provide signing and fencing to keep users on designated trails to control informal human use that may distress understory and trees and increase erosion.
Coe-Clemons Creek (Class 2) Trail Embankment to Main Street	100 feet	o Provide a 100-foot-wide riparian buffer to maintain the off-channel functions of the stream. This buffer may be increased to 150 feet to accommodate mitigation from Reaches 4 through 7 of Coe-Clemmons Creek. o Plant and maintain a mix of native deciduous and coniferous species and native understory within the riparian buffer. Initial maintenance for control of invasive species will be required. o Use of the buffer area for non-intrusive passive recreation should be discouraged due to its width. Formal trails can cross the stream provided that there is adequate fish passage. o Provide signing and fencing to keep users on designated trails to control informal human use that may distress understory and trees and increase erosion.
Coe-Clemons Creek (Class 2) SR 203 to 3rd Ave NE	Varies, see column to the right	o Preserve the existing native vegetation within the ravine and existing buffer areas to the stream. Where the ravine is within private land to the south, upon redevelopment of residences on existing lots, or upon further subdivision, require specific geotechnical reports consistent with this chapter to assure stability of the ravine and provide sufficient top and toe-of-slope vegetated

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
		buffers. o Selectively enhance existing vegetation with native coniferous trees and understory where bank slumping has occurred and where existing deciduous trees are of successional species. o Control invasive species within the buffer area and replace with native vegetation. o Increase top-of slope setbacks and revegetate with native species where erosion into the ravine is observed. o Provide fencing to control informal access to the riparian and steep slope/landslide hazard areas to avoid a network of informal trails and associated vegetation damage and the potential for erosion on steep slope/landslide hazard areas. o Manage runoff from parking lots, playground and lawn areas within the park and from adjacent development to the south to assure they do not adversely affect slope stability, erosion and water quality. o Encourage Low Impact Development (LID) Strategies. o For any private development or redevelopment east and west of Taylor Park: ➢ Provide buffer widths as close as possible to the recommended standard buffer of 100 feet, while meeting reasonable use criteria. ➢ Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. ➢ Provide resources for enhancement of buffer areas in Reach 1 and portions of Reach 2, for areas where recommended stream and steep slope/landslide hazard buffers are not met.

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Coe-Clemmons Creek (Class 2) 3rd Ave NE to N Miller	Varies, see column to the right	○ Provide a buffer width of 100 feet between 3rd Avenue and the detention pond to maintain functions that support salmonid spawning (stream temperature, water quality, and substrate). ○ Provide for future reconfiguration of the detention pond to allow fish passage to upstream areas. ○ Upstream of the detention pond, replace the culverted portion of the stream where not needed for driveway access and provide a buffer width of up to 50 feet (with sufficient clearance to the existing residences if provided) to support the functions provided by its riparian zone (hydrology, stream temperature, and contaminant/sediment regulation) generally support downstream fish use. ○ Encourage Low Impact Development (LID) Strategies. ○ Where the location of existing residences will not accommodate a 50-foot-wide buffer, provide a 25-foot-wide buffer consisting of two zones to maintain or improve the limited buffer functions that currently exist, while still allowing some redevelopment. ➢ The inner 15-foot-wide alternative riparian zone vegetated with a dense community of native trees, shrubs, and groundcover. ➢ Within the outer 10-foot-wide riparian zone, a maximum of 25 percent of the zone may be used as grass turf; with the balance native trees, shrubs, and groundcover.
Coe-Clemmons Creek (Class 2) Parallel to Kennedy , extending east	25 feet	○ Establish a 25-foot-wide buffer consisting of two zones to maintain or improve the limited buffer functions that currently exist, while still allowing some redevelopment. ➢ The inner 15-foot-wide

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
		alternative riparian zone vegetated with a dense community of native trees, shrubs, and groundcover. ➢ Within the outer 10-foot-wide riparian zone, a maximum of 25 percent of the zone may be used as grass turf; with the balance native trees, shrubs, and groundcover. o The stream reach within open space in the Arborwood Plat would maintain the buffer provided in the existing NGPAs for the development in that area. o Encourage Low Impact Development (LID) Strategies.
Coe-Clemmons Creek (Class 2) Parallel to Miller Street, extending east	25 feet	o Establish a 25-foot-wide buffer consisting of two zones to maintain or improve the limited buffer functions that currently exist, while still allowing some redevelopment. ➢ The inner 15-foot-wide alternative riparian zone vegetated with a dense community of native trees, shrubs, and groundcover. ➢ Within the outer 10-foot-wide riparian zone, a maximum of 25 percent of the zone may be used as grass turf; with the balance native trees, shrubs, and groundcover. o Eliminate parking on the street side adjacent to the stream and plant an inner 10-foot-wide vegetated buffer within the right of way. o The remainder of the stream reach, upstream of the east terminus of NE Miller Street, would have the buffer provided in the existing NGPA for the development in that area. o Encourage Low Impact Development (LID) Strategies.
Coe-Clemmons Creek (Class 2)	Varies, see column to the right	Within existing residential lots facing Miller Street and NE 146th Place: o Establish a 25-foot-wide buffer

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
Miller Street to NE 146th Place		consisting of two zones to maintain or improve the limited buffer functions that currently exist, while still allowing some redevelopment. ➢ The inner 15-foot-wide alternative riparian zone vegetated with a dense community of native trees, shrubs, and groundcover. ➢ Within the outer 10-foot-wide riparian zone, a maximum of 25 percent of the zone may be used as grass turf; with the balance native trees, shrubs, and groundcover. In the stream reach within the undeveloped area between lots facing Miller Street and NE 146th Place: o Provide a standard 50-foot buffer. o Provide a vegetation community within the riparian buffer of native trees, shrubs, and groundcover. o Install fencing, signage, or other suitable measures that prohibit or discourage entrance and disturbance to the stream and buffer area to provide protection for stream functions. o Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. o Encourage Low Impact Development (LID) Strategies.
Coe-Clemmons Creek (Class 2) Parallel to NE 272nd Place NE, NE 146th Place, and 274th Way	25 feet	o Establish a 25-foot-wide buffer consisting of two zones to maintain or improve the limited buffer functions that currently exist, while still allowing some redevelopment. ➢ The inner 15-foot-wide alternative riparian zone vegetated with a dense community of native trees, shrubs, and groundcover. ➢ Within the outer 10-foot-wide riparian zone, a maximum of 25 percent of the zone may be used as grass turf; with the

Duvall Performance -based Stream Buffer Standards		
Sensitive Area (Duvall Class)	**Buffers with Enhancements**	**Specific Provisions**
		balance native trees, shrubs, and groundcover. ➢ Encourage Low Impact Development (LID) Strategies.
Cherry Creek A (Class 2) Cherry Valley Road to NE Bird Street	See column to the right	○ Preserve the existing native vegetation within the open space tracts within the ravine and selectively enhance existing vegetation with native coniferous trees and understory where bank slumping has occurred and where existing deciduous trees are of successional species. ○ Control invasive species within the buffer area and replace with native vegetation. ○ Provide fencing to control informal access to the riparian and steep slope/landslide hazard areas to avoid a network of informal trails and associated vegetation damage and the potential for erosion on steep slopes/landslide hazards. ○ For any private development or redevelopment within this stream reach: ➢ Increase top-of slope setbacks and revegetate with native species where erosion into the ravine is observed. ➢ Install stormwater detention/treatment for roadways and other impervious surface on the developed portion of the site. ➢ Provide resources for enhancement of the open space buffer areas in Reach 1 equivalent to the difference between the areas provided in approved development plans and the recommended general stream and recommended general top-of-slope buffer area. ➢ Encourage Low Impact Development (LID) Strategies.

F. Reduced Buffers – Specific Performance Standards not defined. The Director shall have the authority to reduce standard stream buffer widths on a case-by-case basis for streams and/or stream segments that do not have defined specific performance standards when the applicant demonstrates through a sensitive area study to the satisfaction of the Director that all the following criteria are met:

1. The buffer reduction shall not adversely affect the habitat functions and values of the adjacent stream;
2. The buffer shall not be reduced to less than fifty (50) percent of the standard buffer;
3. The slopes adjacent to the stream within the buffer area are stable and the gradient does not exceed thirty percent (30%);
4. The applicant implements all reasonable measures to reduce the adverse effects of adjacent land uses and ensure no net loss of functions and values in conjunction with a sensitive area mitigation study. The specific measures that shall be implemented include, but are not limited to, those in DMC14.42.210.B.4;
5. Stream buffer averaging shall not be allowed if the performance-based stream buffers are implemented pursuant to subsection E above.
6. The applicant shall demonstrate that the proposed reduced buffer is not detrimental to the stream system.

G. Averaged Buffers. The Director shall have the authority to average standard stream buffer widths on a case-by-case basis when the applicant demonstrates to the satisfaction of the Director that all the following criteria are met:

1. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer and all increases in buffer dimension are parallel to the stream
2. The buffer averaging does not reduce the functions or values of the stream or riparian habitat, or the buffer averaging, in conjunction with vegetation enhancement, increases the habitat function;
3. The buffer averaging is necessary due to site constraints caused by existing physical characteristics such as slope, soils, or vegetation;
4. The buffer width may be reduced by twenty-five percent (25%) of the standard width if the criteria in DMC 14.42.320.G are met;
5. The slopes adjacent to the stream within the buffer area are stable and the gradient does not exceed thirty percent (30%);
6. The applicant implements all reasonable measures to reduce the adverse effects of adjacent land uses and ensure no net loss of functions and values in conjunction with a sensitive area mitigation study. The specific measures that shall be implemented include, but are not limited to, those in DMC 14.42.210.B.4.
7. Stream buffer averaging shall not be allowed if the performance-based stream buffers are implemented pursuant to DMC 14.42.330.E.
8. The applicant shall demonstrate that the proposed buffer averaging is not detrimental to the stream system.

H. The Director shall have the authority to increase the width of a stream buffer on a case-by-case basis when such increase is necessary to achieve any of the following:

1. Protect fish and wildlife habitat, maintain water quality, ensure adequate flow conveyance; provide adequate recruitment for large woody debris, maintain adequate stream temperatures, or maintain in-stream conditions.

2. Compensate for degraded vegetation communities or landslide hazard areas adjacent to the stream.

3. Maintain areas for channel migration.

4. Protect adjacent or downstream areas from erosion, landslides, or other hazards.

I. The buffer standards required by this chapter presume the existence of a dense vegetation community in the buffer adequate to protect the stream functions and values. When a buffer lacks adequate vegetation, the Director may require buffer planting or enhancement, and/or deny a proposal for buffer reduction or buffer averaging.

14.42.330 Fish and Wildlife Habitat Conservation Areas – Streams; Allowed Uses

The following activities or uses may be permitted in streams and/or their buffers when all reasonable measures have been taken to avoid adverse effects on species and habitats, compensatory mitigation is provided for all adverse impacts that cannot be avoided, and the amount and degree of the alteration are limited to the minimum needed to accomplish the project purpose.

A. Developments that meet the reasonable use standards set forth in DMC 14.42.070.

B. Relocation of streams, or portions of streams, when there is no other feasible alternative and when the relocation will result in equal or better habitat and water quality and quantity, and will not diminish the flow capacity of the stream or other natural stream processes, provided that the relocation has a state Hydraulic Project Approval, all other applicable permits, and that relocation of the Snoqualmie River shall be prohibited.

C. Road, trail, bridge, and right-of-way crossings provided they meet the following criteria:

1. There is no other feasible alternative route with less impact on sensitive areas.

2. The crossing minimizes interruption of natural processes such as the downstream movement of wood and gravel and the movement of all fish and wildlife. Bridges are preferred for all stream crossings and should be designed to maintain the existing stream substrate and gradient, provide adequate horizontal clearance on each side of the ordinary high water mark and adequate vertical clearance above ordinary high water mark for animal passage. If a bridge crossing is not feasible, culverts shall be designed according to applicable state and federal guidance criteria for fish passage as identified in Fish Passage Design at Road Culverts, WDFW March 1999, and/or the National Marine Fisheries Service Guidelines for Salmonid Passage at Stream Crossings, 2000, (and subsequent revisions) and in accordance with a state Hydraulic Project Approval. The applicant or property owner shall maintain fish passage through bridge or culvert.

3. The City may require that existing culverts be removed, repaired, or modified as a condition of approval if the culvert is detrimental to fish habitat or water quality, and a feasible alternative exists.

4. Crossings shall be limited to the minimum width necessary. Common crossings are the preferred approach where multiple properties can be accessed by one crossing.

5. Access to private development sites may be permitted to cross streams, if there are no feasible alternative alignments. Alternative access shall be pursued to the maximum extent feasible, including through the provisions of RCW 8.24. Exceptions or deviations from technical standards for width or other dimensions, and specific construction standards to minimize impacts may be specified, including placement on elevated structures as an alternative to fill, if feasible.

D. Storm water management facilities limited to detention/treatment ponds, media filtration, facilities and infiltration basins may be permitted in a standard stream buffer, subject to all of the following standards. Such facilities are not permitted in the Performance Based Buffer in DMC 14.42.320.E, or in buffers reduced pursuant to DMC 14.42.320. F and G.

1. The facility is located in the outer fifty percent (50%) of the standard stream buffer and does not displace or impact a forested riparian community;

2. There is no other feasible location for the storm water facility and the facility is located, constructed, and maintained in a manner that minimizes adverse effects on the buffer and adjacent sensitive areas;

3. The storm water facility is designed to generally resemble natural wetlands, no access roadways no retaining walls or slopes in excess of a 3:1 are within the buffer, and meets applicable City storm water management standards and the discharge water meets state water quality standards;

4. Low impact development approaches have been considered and implemented to the maximum extent feasible.

E. Storm water conveyance or discharge facilities such as dispersion trenches, level spreaders, and outfalls may be permitted in a fish and wildlife habitat conservation area buffer on a case-by-case basis when all of the following are met:

1. Due to topographic or other physical constraints there are no feasible locations for these facilities in the outer buffer area or outside the buffer;

2. The discharge is located as far from the ordinary high water mark as possible and in a manner that minimizes disturbance of soils and vegetation.

3. The discharge outlet is in an appropriate location and is designed to prevent erosion and promote infiltration.

4. The discharge meets freshwater State Water Quality Standards, including total maximum daily load (TMDL) standards as appropriate at the point of discharge. Standards should include filtration through mechanical or biological means, vegetation retention, timely reseeding of disturbed areas, use of grass-lined bioswales for drainage, and other mechanisms as appropriate within approved stormwater “special districts.”

F. Clearing and grading, when allowed as part of an authorized use or activity or as otherwise allowed in these standards, may be permitted provided that the following shall apply:

1. Grading is allowed only during the designated dry season, which is typically regarded as April 1 to October 1 of each year, provided that the City may extend or shorten the designated dry season on a case-by-case basis, based on actual weather conditions.
2. Appropriate erosion and sediment control measures shall be used at all times. The soil duff layer shall remain undisturbed to the maximum extent possible. Where feasible, disturbed topsoil shall be redistributed to other areas of the site.

3. The moisture-holding capacity of the topsoil layer shall be maintained by minimizing soil compaction or reestablishing natural soil structure and infiltrative capacity on all areas of the project area not covered by impervious surfaces.

G. Stream bank stabilization, shoreline protection, and public or private launching ramps may be permitted subject to all of the following standards:

1. Natural shoreline processes will be maintained to the maximum extent practicable. The activity will not result in increased erosion and will not alter the size or distribution of shoreline or stream substrate;

2. No adverse impact to fish or wildlife habitat conservation areas or associated wetlands will occur.

3. No alteration of juvenile fish migration corridors will occur.

4. No net loss of riparian habitat function will occur.

5. Nonstructural measures, such as placing or relocating the development further from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient;

6. Stabilization is achieved through bioengineering or soft armoring techniques in accordance with Washington Department of Fish and Wildlife's Integrated Streambank Protection Guidelines and an applicable hydraulic permit issued by the Washington Department of Fish and Wildlife;

7. Hard bank armoring may occur only when the property contains an existing permanent structure(s) that is in danger from shoreline erosion caused by riverine processes and not erosion caused by upland conditions, such as the alteration of natural vegetation or drainage, and the armoring shall not increase erosion on adjacent properties and shall not eliminate or reduce sediment supply;

8. Normal sloughing, erosion of steep bluffs, or shoreline erosion itself, without a scientific or geotechnical analysis, is not demonstration of need.

9. The armoring will not adversely affect fish and wildlife habitat conservation areas or mitigation will be provided to compensate for adverse effects where avoidance is not feasible;

H. Construction of trails may be permitted in a stream buffer subject to all of the following standards:

1. There is no other feasible alternative route with less impact on the sensitive area.

2. The trail minimizes disruption of natural processes, such as wood recruitment, and natural wildlife movement patterns;

3. Trails in riparian (stream) buffers shall be located on the outer fifty percent (50%) of the standard buffer, except for limited viewing platforms and crossings; shall not exceed 4 feet in width and shall be made of pervious material where feasible;

4. The trail is constructed and maintained in manner that minimizes disturbance of the buffer and associated sensitive areas.

5. Preference shall be given to community trails and trails constructed of pervious materials.

I. New utility lines and facilities may be permitted when all of the following criteria are met:

1. There is no feasible alternative outside of sensitive area buffers and impacts to fish and wildlife habitat shall be avoided to the maximum extent possible.

2. Where feasible, installation shall be accomplished by boring beneath the scour depth and of the stream or water body and the width of the channel migration zone where present.

3. The utilities shall cross streams at an angle greater than sixty (60) degrees to the centerline of the channel or perpendicular to the channel centerline whenever boring under the channel is not feasible.

4. Crossings shall be contained within the footprint of an existing road or utility crossing where possible.

5. The utility installation shall not increase or decrease the natural rate or opportunity of channel migration.

J. New public flood protection measures and expansion of existing ones may be permitted, subject to DMC 14.25, a state Hydraulic Project Approval and other permits, provided that mitigation is provided to minimize adverse effects on stream hydrology and that bioengineering or soft armoring techniques shall be used where feasible. Hard bank armoring may occur only in situations where soft approaches do not provide adequate protection.

K. Instream structures, such as, but not limited to, high flow bypasses, dams, and weirs, shall be allowed only as part of a watershed restoration project as defined pursuant to and upon acquisition of any required state or federal permits. The structure shall be designed to avoid adverse effects on stream flow, water quality, or other habitat functions and values.

14.42.340 Habitat Conservation Areas - Ponds and Lakes

A. Buffer Measurement. The standard buffer shall be measured landward horizontally perpendicular to the shore of the pond or lake. The required buffer shall be extended to include any adjacent regulated wetland(s), landslide hazard areas and/or erosion hazard areas and required buffers, but shall not be extended across roads or other lawfully established structures or hardened surfaces that are that are functionally and effectively disconnected from the habitat, pond or lake.

B. Buffer Widths

1. Lake Rasmussen - buffers shall extend 50 feet from the ordinary high water mark;

2. Other lakes - buffers shall extend 50 feet from the ordinary high water mark unless the Director determines that a narrower or wider buffer is appropriate based on the results of a sensitive area study.

C. Allowed Uses. Allowed uses within natural ponds and their buffers shall be the same as those in DMC 14.42.330 for streams.

14.42.350 Other Fish and Wildlife Habitat Conservation Areas

A. Definition and Buffers. Protection standards for fish and wildlife habitat conservation areas other than streams and lakes are as provided in the table below.

Fish and Wildlife Habitat Conservation Area	Buffer Requirement
Areas with which federally listed threatened or endangered species have a primary association. State Priority Habitats and areas with which Priority Species have a Primary Association. A primary association means a critical component(s) of the habitats of a species, which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term.	Buffers shall be based on recommendations provided by the Washington Department of Fish and Wildlife Priority Habitat Species (PHS) Program; provided that where no such recommendations are available, the buffer width shall be determined based on published literature concerning the species/habitat(s) in question and/or the opinions and recommendations of qualified professional with appropriate expertise.
Natural Area Preserves and Natural Resource Conservation Areas	Buffers shall be based on recommendations provided by site managers provided that the management strategies are considered effective and within the scope of this chapter.
Locally Important Habitat Areas	The need for and dimensions of buffers for locally important species or habitats shall be determined on a case by case basis, according to the needs of specific species or habitat area of concern. The Director shall coordinate with the Washington Department of Fish and Wildlife and other State, Federal or Tribal agencies in these instances, and shall use Washington Department of Fish and Wildlife (WDFW) PHS management recommendations when available.

B. Alterations that occur within a locally important habitat area or that may affect a locally important species as defined herein shall be subject to review on a case-by-case basis. The Director shall have the authority to require an assessment of the effects of the alteration on species or habitats and may require mitigation to ensure that adverse effects do not occur. This standard is intended to allow for flexibility and responsiveness with regard to locally important species and habitats.

14.42.360 Fish and Wildlife Habitat Conservation Areas - Review and Reporting Requirements

A. When City sensitive area maps or other sources of credible information indicate that a site proposed for development or alteration may contain fish and wildlife habitat conservation areas or be within the buffer of a fish and wildlife habitat conservation area, the Director shall require a site evaluation (field investigation) by a qualified professional or other measures to determine whether or not the species or habitat is present and if so, its relative location in relation to the proposed project area or site. If no fish and wildlife habitat conservation areas are present, then review will be considered complete. If the site evaluation determines that the species or habitat is present, the Director shall require a sensitive areas assessment report .

B. The Director may waive the report requirement for a single-family development that involves less than 5,000 square feet of clearing and/or vegetation removal and will not directly disturb the designated stream or pond buffer area, designated species, or specific areas or habitat features that comprise the fish and wildlife habitat conservation area (nest trees, breeding sites, etc.) as indicated by a site plan or scaled drawing of the proposed development.

C. The sensitive areas report shall describe the characteristics of the subject property and provide other pertinent information including but not limited to:

1. Description of habitats and species; review of historical aerial photos or other available public records; description of existing topography, hydrology, soils, and vegetative features; existing physical features of the site such as buildings, fences roads, parking lots, utilities, etc;

2. The report shall specifically describe proposed development activities, including, but not limited to: type and extent of clearing and grading' temporary construction activities' type and extent of permanent structures; and measures to avoid, minimize, and/or mitigate adverse impacts of the proposed development.

3. The report shall also describe, at a minimum, the proposed development's impact on: fish and wildlife species, habitat areas, and/or buffers, including the area of direct disturbance; natural drainage or infiltration patterns' surface or subsurface hydrology; and local and regional stormwater management. The analysis shall consider the effects of increased noise, light or human intrusion.

14.42.370 Fish and Wildlife Habitat Conservation Areas - Management Standards

A. Activities that adversely affect fish and wildlife habitat conservation areas and/or their buffers should generally be avoided through site design, including clustering. Unavoidable impacts to designated species or habitats shall be compensated for through habitat creation, restoration and/or enhancement to achieve no net loss of habitat functions and values in accordance with the purpose and goals of this chapter.

B. When compensatory mitigation is required, the applicant shall submit a mitigation plan in accordance with 14.42.130 with sufficient information to demonstrate that the proposed activities are logistically feasible, constructible, ecologically sustainable, and likely to succeed. Specific information to be provided in the plan shall include, but not be limited to:

1. General description and scaled drawings of the activities proposed including, but not limited to, to clearing, grading/excavation, drainage alterations, planting, invasive plant management,

installation of habitat structures, irrigation, and other site treatments associated with the development activities and proposed mitigation action(s);

2. A description of the functions and values that the proposed mitigation area(s) shall provide, together with a description of required and an assessment of factors that may affect the success of the mitigation program; and

3. A description of known management objectives for the species or habitat.

C. Required mitigation shall be completed as soon as possible following activities that will disturb fish and wildlife habitat conservation areas and during the appropriate season. Mitigation shall be completed prior to use or occupancy of the activity or development. Construction of mitigation projects shall be timed to reduce impacts to existing wildlife and flora.

D. The Director shall have authority to require monitoring of mitigation activities and submittal of annual monitoring reports to ensure and document that the goals and objectives of the mitigation are met. The frequency and duration of the monitoring shall be based on the specific needs of the project as determined by the Director.

14.42.400 Geologically Hazardous Areas - Designation and Mapping

A. For purposes of this chapter, geologically hazardous areas shall include all of the following:

1. Landslide Hazard Areas - Landslide hazard areas include areas susceptible to landslides because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other physical factors. Landslide hazard areas shall include areas susceptible to landslides because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other physical factors. Potential landslide hazard areas exhibit one or more of the following characteristics:

   a. Slopes exceeding 40 percent with a vertical relief of ten (10) or more feet except areas composed of competent rock and properly engineered slopes designed and approved by a geotechnical engineer licensed in the State of Washington and experienced with the site;

   b. Potentially unstable slopes resulting from rapid river or stream incision, river or stream bank erosion include slopes exceeding 10 feet in height adjacent to streams, and lakes with more than a 30 percent gradient;

   c. Slopes between 15 and 40 percent that have a relatively permeable geologic unit overlying a relatively impermeable unit and have springs or groundwater seeps;

   d. Areas that have shown evidence of historic failure or instability, including but not limited to back-rotated benches on slopes; areas with structures that exhibit structural damage such as settling and racking of building foundations; and areas that have toppling, leaning, or bowed trees caused by ground surface movement;

   e. Areas that show past sloughing or calving of bluff sediments, resulting in a vertical or steep bluff face with little or no vegetation;

   f. Areas that are at risk of mass wasting due to seismic forces.

   g. Areas of historical landslide movement mapped by the Department of Natural Resources slope stability mapping as unstable (“U” or class 3), unstable old slides (“UOS” or class 4), or unstable recent slides (“URS” or class 5).

   h. Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the U.S. Geological Survey or Washington State Department of Natural Resources.

2. Seismic Hazard Areas - Seismic hazard areas include areas subject to a severe risk of earthquake damage as a result of seismically induced ground shaking, differential settlement, slope failure, settlement, lateral spreading, mass wasting, surface faulting or soil liquefaction.

3. Erosion Hazard Areas - Erosion hazard areas are those areas of Duvall containing soils that may experience severe to very severe erosion hazard including the following:

    a. Moderate surface erosion hazard areas, which are slopes greater than 15 percent and less than 40 percent with soils identified by the Natural Resources Conservation Service as having a “severe," or “very severe” rill and inter-rill erosion hazard because of natural characteristics, including vegetative cover, soil texture, slope, gradient, and rainfall patterns, or human induced changes to natural characteristics. This group of soils includes but is not limited to the following:

        Alderwood gravelly sandy loam (Agd);

        Alderwood-Kitsap (AkF);

        Beausite gravelly sandy loam (BeD and BeF);

        Kitsap silty loam (KpD);

        Ovall gravelly sandy loam (OvD and OvF);

        Ragnar fine sandy loam (RaD);

        Ragnar-Indianola Association (RdE); or

        Any occurrence of River Wash (Rh)

    b. Severe surface erosion hazard areas are slopes greater than 40 percent with the same soils as identified in a, above.

B. The approximate location and extent of known and suspected geologically hazardous areas are shown the City’s sensitive area maps. Other, unmapped geologically hazardous areas may exist in Duvall. This chapter does not imply that land outside mapped geologically hazardous areas or uses permitted within such areas will be without risk. This chapter shall not create liability on the part of the City or any officer or employee thereof for any damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

14.42.420 Geologically Hazardous Areas – General Standards

The following requirements shall apply to all activities in geologically hazardous areas:

A. Alterations shall be directed toward portions of parcels or parcels under contiguous ownership that are not subject to, or at risk from, geologic hazards and/or are outside any associated buffer established by this chapter.

B. Critical facilities, include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations that produce, use, or store hazardous materials shall not be located in geologically hazardous areas if there is a feasible alternative location outside geologically hazardous areas that would serve the intended service population. If allowed, the facility shall be designed and operated to minimize the risk and danger to public health and safety to the maximum extent feasible.

C. Land that is located wholly within a landslide or erosion hazard area, or its buffer may not be subdivided to create buildable parcels entirely within the hazardous area. Land that is located partially within a hazard area or its buffer may be divided provided that each resulting lot has sufficient buildable area outside of the hazardous area with provision for drainage, erosion control and related features that will not adversely affect the hazard area or its buffer.

D. Allowed developments shall be engineered and/or constructed to minimize risk to health and safety, and protect the building and occupants from the hazard, and to avoid or compensate for impacts to other sensitive areas such as wetlands and fish and wildlife habitat conservation areas.

E. Clearing and grading shall be allowed from May 1 to September 30 of each year provided that the City may extend or shorten the dry season on a case-by-case basis depending on actual weather conditions, except that timber harvest, not including brush clearing or stump removal, may be allowed pursuant to an approved forest practice permit issued by the Washington State Department of Natural Resources. Clearing and grading may be allowed between October 1 and April 30 only upon written approval by the Department of Public Works;

F. Utility lines and pipes shall be permitted in erosion and landslide hazard areas only when the applicant demonstrates that no other practical alternative is available. The line or pipe shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide. Stormwater conveyance shall be allowed only through a high-density polyethylene pipe with fuse-welded joints, or similar product that is technically equal or superior;

G. Point discharges from surface water facilities and roof drains onto or upstream from an erosion or landslide hazard area shall be prohibited unless conveyed downslope to a point where there are no erosion hazards and discharged in accordance with standards for wetlands and streams.

H. Access roads and trails that are engineered and built to standards that avoid the need for major repair or reconstruction beyond that which would be required in non-hazard areas may be permitted only if the applicant demonstrates that no other feasible alternative exists, including through the provisions of RCW 8.24. If such access through sensitive areas is granted, exceptions or deviations from technical standards for width or other dimensions, and specific construction standards to minimize impacts may be specified.

I. On-site sewage disposal systems, including drain fields, shall be prohibited within erosion and landslide hazard areas and related buffers.

J. Structures and improvements shall be designed to meet the following guidelines:

1. Minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

2. Structures and improvements shall be located to preserve the most sensitive portion of the site and its natural landforms and vegetation;

3. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes; and

4. Development shall be designed to minimize impervious lot coverage;

K. A qualified professional, licensed in the state of Washington, shall review projects in geologically hazardous areas to ensure that they are properly designed and constructed.

14.42.430 Geologically Hazardous Areas - Landslide Hazard Area Standards

A. Modification of topography and vegetation in landslide hazard areas should be stringently limited to provide multiple benefits including reduction of stormwater runoff, reduction erosion potential and long-term stability of sensitive slopes. Unless otherwise provided or as part of an approved alteration, removal of vegetation from a landslide hazard area or related buffer shall be prohibited. The landslide and buffer shall include woody vegetation adequate to stabilize the soil and prevent mass wasting. If the designated buffer area lacks adequate woody vegetation, the Director shall have the authority to require vegetation restoration or other measures to improve slope stability.

B. Alterations of a landslide hazard area and/or buffer may only occur for activities for which a sensitive area report is submitted and meets the following criteria:

1. Reasonable development cannot be accommodated on portions of the site not subject to landslide hazards. Structures and improvements shall be clustered to avoid geologically hazardous areas and other sensitive areas. Development within buffer areas shall be preferred over development within landslide hazard areas.

2. Areas that are directly adjacent to a wetland, stream, pond or lake are not eligible for alteration of landslide areas with a gradient of 40 percent or more but may be subject to alteration of buffers.

3. The development will not increase surface water discharge or sedimentation to adjacent properties beyond pre-development conditions;

4. The development will not increase erosion or sedimentation risk or decrease slope stability, or result in greater risk or a need for increased buffers on neighboring properties;

5. Such alterations will not adversely impact other sensitive areas;

6. The proposed development shall not decrease the factor of safety for landslide occurrences below the limits of 1.5 for static conditions and 1.2 for dynamic conditions. Analysis of dynamic conditions shall be based on a minimum horizontal acceleration as established by the current version of the International Building Code. Measures to maintain slope stability, such as drainage systems, must be of a design that will assure operation without facilities requiring regular maintenance that would jeopardize stability if the facility fails.

C. Buffer Requirements. A buffer shall be established from all edges of landslide hazard areas. The size of the buffer shall be determined by the Public Works Director to eliminate or minimize the risk of property damage, death, or injury resulting from landslides caused in whole or part by the development, based upon review of and concurrence with a sensitive area report prepared by a qualified professional.

   1. Minimum Buffer.

      a. The buffer from the top of a slope shall be designed to protect persons and property from damage due to catastrophic slope failure and slope retreat over the lifetime of the use and provide an area of vegetation to promote shallow stability, control erosion and promote multiple benefits to wildlife and other resources. The buffer distance from the top of slope shall be equal to the greater of:

         i. The distance from the toe of slope upslope at a slope of 2:1 (horizontal to vertical) to a point that intersects with the site's ground elevation; or

         ii. A horizontal distance from the top of the slope equal to the vertical height of the slope; or

         iii. Fifty (50) feet from the top of the slope.

      b. The buffer from the toe of a slope shall provide for the safety of persons and property from the run-out resulting from slope failure and shall be the greater of:

         i. A horizontal distance equal to the vertical height of the slope; or

         ii. Fifty (50) feet from the toe of the slope.

   2. Buffer Reduction. The buffer may be reduced to a minimum of ten (10) feet based on analysis of specific development plans provided by a qualified professional that demonstrates to the Public Works Director's satisfaction that the reduction will adequately protect the proposed development, adjacent developments, uses and other nearby sensitive areas, and will not result in reduced slope stability.

   3. Increased Buffer. The buffer may be increased where the Public Works Director determines a larger buffer is necessary to prevent risk of damage to proposed and existing development.

14.42.440 Geologically Hazardous Areas - Erosion Hazard Areas Standards

A. Modification of topography and vegetation in erosion hazard areas shall be:

1. Minimized in moderate surface erosion areas retained to provide multiple benefits including reduction of stormwater runoff and reduction erosion potential;

2. Prohibited in severe erosion areas to provide multiple benefits including reduction of stormwater runoff and reduction erosion potential and long-term stability of sensitive slopes in all but exceptional cases. The severe erosion hazard area and buffer shall include woody vegetation and undergrowth adequate to stabilize the soil and prevent erosion. If the designated erosion hazard area and buffer area lacks adequate woody vegetation, the Public Works Director shall have the authority to require vegetation restoration other measures to improve slope stability.

B. Development within surface erosion hazard areas and buffers may be allowed according to the following criteria.

1. For moderate surface erosion hazard areas, development is allowed if the criteria in DMC 14.42.420 and 14.42.430.B. 1 through 5 are met.

2. For severe surface erosion hazard areas, development is allowed if additional criteria in DMC 14.42.420 and 14.42.430.B. 1 through 6 are met.

C. Buffer requirements. Buffer requirements are as follows.

1. There are no buffer areas required for moderate surface erosion hazard areas.

2. Buffer areas for severe surface erosion hazard areas are the same as those designated for landslide hazards in DMC 14.42.430.C.

14.42.450 Geologically Hazardous Areas - Seismic Hazard Areas Standards

Development may be allowed in seismic hazard areas when all of the following apply:

A. Structures in seismic hazard areas shall conform to applicable analysis and design criteria of the International Building Code.

B. Public roads, bridges, utilities and trails shall be allowed when there are no feasible alternative locations and geotechnical analysis and design are provided that ensure the roadway, bridge and utility structures and facilities will not be susceptible to damage from seismic induced ground deformation. Mitigation measures shall be designed in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual or other appropriate document.

14.42.460 Geologically Hazardous Areas Review and Reporting Requirements

A. When City sensitive area maps or other sources of credible information indicate that a site proposed for development or alteration is or may be located within a geologically hazardous area the Director shall have the authority to require the submittal of a geological assessment report.

B. A geological assessment report is an investigation process to evaluate the geologic characteristics of the subject property and adjacent areas. The geological assessment shall include field investigation and may include the analysis of historical aerial photographs, review of public records and documentation, and interviews with adjacent property owners. The report shall include the following, provided that the Director may determine that any portion of these requirements is unnecessary given the scope and/or scale of the proposed development:

1. A description of which areas on the site, surrounding areas that influence or could be influenced by the site, or areas within three hundred (300) feet of the site meet the criteria for geologically hazard areas as set forth in DMC 14.42.400.

2. A scaled site plan showing:
    a. The type and extent of geologic hazard areas, and any other sensitive areas, and buffers on, adjacent to or that are likely to impact or influence the proposal; including properties upslope of the subject site;
    b. The location of existing and proposed structures, fill, access roads, storage of materials, and drainage facilities, with dimensions indicating distances to the floodplain;
    c. The existing site topography preferably accurate to within two-foot contours; and
    d. Clearing limits.
3. A description of the site features, including surface and subsurface geology, hydrology, soils, and vegetation found in the project area and in all hazard areas addressed in the report. This may include surface exploration data such as borings, drill holes, test pits, wells, geologic reports, and other relevant reports or site investigations that may be useful in making conclusions or recommendations about the site under investigation.
4. A description of the processes affecting the property or affected by development of the property including soil erosion, deposition, or accretion;
5. A description of the vulnerability of the site to seismic and other geologic processes and a description of any potential hazards that could be created or exacerbated as a result of site development.
6. A description and analysis of the risk associated with development prohibitions and buffers associated with this code and the level of risk associated with alternative proposals for development within or with less setback from the area of geological hazard.
7. A description and analysis of the risk associated with the measures proposed to mitigate the hazards, ensure public safety, and protect property and other sensitive areas.
8. For projects in or affecting landslide hazard areas the report shall also include:
    a. Assessments and conclusions regarding slope stability for both the existing and developed conditions including the potential types of landslide failure mechanisms (e.g., debris flow, rotational slump, translational slip, etc.) that may affect the site. The stability evaluation shall also consider dynamic earthquake loading, and shall use a minimum horizontal acceleration as established by the current version of the International Building Code.
    b. Description of the run-out hazard of landslide debris to the proposed development that starts upslope (whether part of the subject property or on a neighboring property) and/or the impacts of landslide run-out on down slope properties and sensitive areas.
    c. Recommended landslide hazard buffer width per the results of the assessment and the provisions within this code.
9. For projects in seismic hazard areas the report shall also include a detailed engineering evaluation of expected ground displacements or other liquefaction and/or dynamic settlement effects and proposed mitigation measures to ensure an acceptable level of risk for the proposed structure type or other development facilities such as access roads and utilities.

14.42.500 Flood Hazard Areas – Designation and Mapping

Flood hazard areas are those areas of Duvall subject to inundation by the base flood. Management of flood hazard areas shall be in accordance with DMC 14.84 of this title.

14.42.600 Critical Aquifer Recharge Areas - Designation and Mapping

A. Aquifer recharge areas susceptible to degradation or depletion because of hydrogeologic characteristics are those areas meeting the criteria established by the state Department of Ecology (Guidance Document for the Establishment of Sensitive Aquifer Recharge Area Ordinances, July 2000, Publication # 97-30, Version 4.0). Sensitive aquifer recharge areas shall be classified as follows:

1. Low susceptibility areas – areas underlain by glacial till, till-like soils; areas outside the aquifer recharge area identified by King County; and areas within the 5- to 10-year travel time zone for designated wellhead protection areas;

2. Moderate susceptibility – areas within the aquifer recharge area identified by King County; and areas within the 1- to 5- year travel time zone for designated wellhead protection areas;

3. High susceptibility – areas within the 0- to 1-year travel time zone for zone for designated wellhead protection areas.

14.42.610 Critical Aquifer Recharge Areas Standards

A. The following developments and uses are prohibited in critical aquifer recharge areas:

1. New landfills, including hazardous or dangerous waste, municipal solid waste, special waste, wood waste of more than 2,000 cubic yards, and inert and demolition waste landfills.

2. Underground injection wells. Class I, III, and IV wells and subclasses 5F01, 5D03, 5F04, 5W09, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 of Class V wells.

3. Metals and hard rock mining and new sand and gravel mining in sensitive aquifer recharge areas determined to be highly susceptible, provided that such activities are permitted.

4. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and manmade).

5. Facilities that store, process, or dispose of chemicals containing perchloroethylene (PCE), benzene, ethyl-benzene, toluene, and xylene (BTEX), or methyl tertiary butyl (MtBE).

6. Facilities that store, process, or dispose of radioactive substances.

7. Other activities that the Director determines would significantly degrade groundwater quality and/or reduce the recharge to aquifers currently or potentially used as a potable water source or that may serve as a significant source of base flow to a regulated stream. The determination must be made based on credible scientific information.

14.42.620 Critical aquifer recharge areas review

A. The following development activities, when proposed in moderate or high susceptibility critical aquifer recharge areas, have the potential to adversely affect groundwater quality and/or quantity and shall require submittal of a sensitive areas assessment report:

1. Any development with an on-site domestic septic system at a gross density greater than one system per residence per acre.

2. All storage tanks and storage facilities for hazardous substances and/or hazardous wastes provided that:

   a. The tanks must comply with Department of Ecology regulations contained in WAC 173-360 and 173-303 as well as International Building Code requirements;

   b. All new underground tanks and facilities shall be designed and constructed so as to prevent releases due to corrosion or structural failure for the operational life of the tank, or have a secondary containment system to prevent the release of any stored substances;

c. All new aboveground storage tanks and facilities shall be designed and constructed so as to prevent the release of a hazardous substance to the ground, ground waters, or surface waters by having primary and secondary containment.

3. Vehicle repair, servicing and salvaging facilities, provided that the facility must be conducted over impermeable pads and within a covered structure capable of withstanding normally expected weather conditions. Chemicals used in the process of vehicle repair and servicing must be stored in a manner that protects them from weather and provides containment should leaks occur. Dry wells shall not be allowed on sites used for vehicle repair and servicing. Dry wells existing on the site prior to facility establishment must be abandoned using techniques approved by the state Department of Ecology prior to commencement of the proposed activity.

4. Use of reclaimed waste water must be in accordance with adopted water or sewer comprehensive plans that have been approved by the State departments of Ecology and Health.

5. Any other development activity that the Director determines is likely to have a significant adverse impact on ground water quality or quantity, or on the recharge of the aquifer. The determination must be made based on credible scientific information.

B. The sensitive area study above shall contain the following:

1. Available information regarding geologic and hydrogeologic characteristics of the site including the surface location of all critical aquifer recharge areas located on site or immediately adjacent to the site, and permeability of the unsaturated zone;

2. Ground water depth, flow direction and gradient based on available information;

3. Currently available data on wells and springs within 1,300 feet of the project area;

4. The presence and approximate location of other sensitive areas, including surface waters, within 1,300 feet of the project area based on available data and maps;

5. Existing and available historic water quality data for the area to be affected by the proposed activity;

6. Proposed best management practices to be used in developing and operating the project;

7. The effects of the proposed project on the ground water quality and quantity, including:

a. Potential effects on stream flow, wetlands and/or other resources, and on ecosystem processes;

b. Predictive evaluation of ground water withdrawal effects on nearby wells and surface water features; and

c. Predictive evaluation of contaminant transport based on potential releases to ground water; and

8. A spill plan that identifies equipment and/or structures that could fail, resulting in an impact. Spill plans shall include provisions for emergency response provisions as well as regular inspection, repair, and replacement of structures and equipment that could fail.

C. If the applicant can demonstrate through a valid hydrogeological assessment that geologic and soil conditions underlying their property do not meet the criteria for low, moderate, or high susceptibility, the property shall not be considered a critical aquifer recharge area.

14.42.700 Definitions

1. “Activity" means human activity associated with the use of land or resources.
2. “Actively farmed” means land that has a documented history of ongoing agricultural use and that is currently used primarily for the production of crops and/or raising or keeping livestock.
3. “Accessory structure” means a structure that is incidental and subordinate to a primary use. Barns, garages, storage sheds, and similar structures are examples.
4. “Adaptive management” means using scientific methods to evaluate how well regulatory and non-regulatory actions protect the sensitive area. An adaptive management program is a formal and deliberate scientific approach to taking action and obtaining information in the face of uncertainty. Management policy may be adapted based on a periodic review of new information.
5. “Agricultural land” is land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, or livestock, and/ or lands that have been designated as capable of producing food and fiber, which have not been developed for urban density housing, business, or other uses incompatible with agricultural activity..
6. "Agricultural activities" means those activities directly pertaining to the production of crops or livestock including but not limited to cultivation, harvest, grazing, animal waste storage and disposal, fertilization, the operation and maintenance of farm and stock ponds or drainage ditches irrigation systems, canals, and normal maintenance, repair, or operation of existing serviceable structures, facilities, or improved areas. Activities that bring an area into agricultural use are not agricultural activities.
7. “Alteration” means any human-induced change in an existing condition of a sensitive area or its buffer. Alterations include, but are not limited to grading, filling, channelizing, dredging, clearing (vegetation), draining, construction, compaction, excavation, or any other activity that changes the character of the sensitive area.
8. "Alluvium" means a general term for clay, silt, sand, gravel, or similar other unconsolidated detrital materials, deposited during comparatively recent geologic time by a stream or other body of running water, as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta.
9. "Anadromous fish" means fish species that spend most of their lifecycle in salt water, but return to freshwater to reproduce.
10. "Aquifer" means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs (Chapter 173-160 WAC).
11. “Aquifer susceptibility” means the ease with which contaminants can move from the land surface to the aquifer based solely on the types of surface and subsurface materials in the area. Susceptibility usually defines the rate at which a contaminant will reach an aquifer unimpeded by chemical interactions with the vadose zone media.
12. “Aquifer vulnerability" is the combined effect of susceptibility to contamination and the presence of potential contaminants.
13. “Base flood” is a flood event having a one percent (1%) chance of being equaled or exceeded in any given year, also referred to as the 100-year flood. Designations of base flood areas on flood insurance map(s) always include the letters A (zone subject to flooding during a 100-year flood, but less so than V zones) or V (zone subject to the highest flows, wave action, and erosion during a 100-year flood).
14. "Bedrock" means a general term for rock, typically hard, consolidated geologic material that underlies soil or other unconsolidated, superficial material or is exposed at the surface.
15. “Best available science” means information from research, inventory, monitoring, surveys, modeling, synthesis, expert opinion, and assessment that is used to designate, protect, or restore sensitive areas. As defined by WAC 365-195-900 through 925, Best Available Science is derived from a process that includes peer-reviewed literature, standard methods, logical conclusions and reasonable inferences, quantitative analysis, and documented references to produce reliable information.
16. "Best Management Practices" means conservation practices or systems of practices and management measures that:
    1. Control soil loss and reduce water quality degradation caused by nutrients, animal waste, toxins, and sediment;

2. Minimize adverse impacts to surface water and ground water flow, circulation patterns, and to the chemical, physical, and biological characteristics of waters, wetlands, and other fish and wildlife habitat.
3. Control plant site runoff, spillage or leaks, sludge or water disposal, or drainage from raw material.

17. "Buffer (the buffer zone)" means the vegetated area adjacent to the outer boundaries of sensitive areas that separates and protects sensitive areas from adverse impact associated with adjacent land uses.

18. “City” means Duvall, Washington.

19. “Clearing” means the removal of vegetation or plant cover by manual, chemical, or mechanical means. Clearing includes but is not limited to actions such as cutting, felling, thinning, flooding, killing, poisoning, girdling, uprooting, or burning.

20. “Compensatory mitigation” means a mitigation project for the purpose of replacing, at an equivalent or greater level, unavoidable sensitive area and buffer impacts that remain after all appropriate and practicable avoidance and minimization measures have been implemented. Compensatory mitigation includes, but is not limited to, wetland creation, restoration, enhancement, and preservation; stream restoration and relocation, rehabilitation; and buffer enhancement.

21. "Conservation" means the prudent management of rivers, streams, wetlands, wildlife and other environmental resources in order to preserve and protect them. This includes the careful utilization of natural resources in order to prevent depletion or harm to the environment.

22. “Conservation easement’ means a legal agreement that the property owner enters into to restrict uses of the land for purposes of natural resources conservation. The easement is recorded on a property deed, runs with the land, and is legally binding on all present and future owners of the property.

23. "Contaminant" means any chemical, physical, biological, or radiological substance that does not occur naturally in ground water, air, or soil or that occurs at concentrations greater than those in the natural levels (Chapter 172-200 WAC).

24. “Creation” means the manipulation of a non-wetland (upland) site for purposes of establishing wetland functions and characteristics where none previously existed. Activities could include, but are not limited to, excavation of upland soils to elevations that will produce a wetland hydroperiod, create hydric soils, and support the growth of wetland plant species. Creation results in a gain in wetland acres.

25. “Critical or sensitive aquifer recharge area” means areas designated by WAC 365-190-080(2) that are determined to have a critical recharging effect on aquifers (i.e., maintain the quality and quantity of water) used for potable water as defined by WAC 365-190-030(2).

26. "Critical facilities" includes modification of selected critical facilities identified under the occupancy categories of essential facilities, hazardous facilities, and special occupancy structures in the International Building Code, 2003 Edition. These include but are not limited to:

1. Essential Facilities.
2. Fire and police stations;
3. Tanks or other structures containing, housing or supporting water or other fire-suppression materials or equipment required for the protection of essential or hazardous facilities, or special occupancy structures;
4. Emergency vehicle shelters and garages;
5. Structures and equipment in emergency-preparedness centers;
6. Stand-by power generating equipment for essential facilities;
7. Structures and equipment in government communication centers and other facilities required for emergency response.
8. Hazardous Facilities. Structures supporting or containing sufficient quantities of toxic or explosive substances dangerous to the safety of the general public if released.
9. Special Occupancy Structures; Covered structures where primary occupancy is public assembly; Buildings for schools, colleges, adult education or day-care centers; Hospitals and other medical facilities; Jails and detention facilities.

27. “Critical habitat” means habitat areas with which endangered, threatened, sensitive or monitored plant, fish, or wildlife species have a primary association (e.g., feeding, breeding, rearing of young, migrating). Such areas are identified herein with reference to lists, categories, and definitions promulgated by the Washington Department of Fish and Wildlife as identified in WAC 232-12-011 or 232-12-014; in the Priority Habitat and Species (PHS) program of the Department of Fish and Wildlife; or by

rules and regulations adopted by the U.S. Fish and Wildlife Service, National Marine Fisheries Service, or other agency with jurisdiction for such designations.

28. "Deepwater habitats" means permanently flooded lands lying below the deepwater boundary of wetlands. Deepwater habitats include environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium in which the dominant organisms live. The boundary between wetland and deepwater habitat in the marine and estuarine systems coincides with the elevation of the extreme low water of spring tide; permanently flooded areas are considered deepwater habitats in these systems. The boundary between wetland and deepwater habitat in the riverine and lacustrine systems lies at a depth of two meters (6.6 feet) below low water; however, if emergent vegetation, shrubs, or trees grow beyond this depth at any time, their deepwater edge is the boundary

29. "Delineation" means the precise determination of wetland boundaries in the field according to the application of specific method described in the 1997 Washington State Wetland Delineation manual and/or the, Corps of Engineers Wetlands Delineation Manual 1987 Edition, as amended.

30. "Development" means any activity that requires federal, state, or local approval for the use or modification of land or its resource. These activities include, but are not limited to: subdivision and short subdivisions; binding site plans; planned unit developments; variances; shoreline substantial development; clearing activity; fill and grade work; activity conditionally allowed; building or construction; revocable encroachment permits; and septic approval.

31. "Drainage ditch" means an artificially created watercourse constructed to drain surface or ground water. Ditches are graded (man-made), channels installed to collect and convey runoff from fields and roadways. Ditches may include irrigation ditches, waste ways, drains, outfalls, operational spillways, channels, storm water runoff facilities or other wholly artificial watercourses, except those that directly result from the modification to a natural watercourse. Ditched channels that support fish are considered to be streams.

32. “Emergency activities” are those activities that require immediate action within a time too short to allow full compliance with this chapter due to an unanticipated and imminent threat to public health, safety or the environment. Emergency construction does not include development of new permanent protective structures where none previously existed. All emergency construction shall be consistent with the policies of 90.58 RCW and this chapter. As a general matter, flooding or other seasonal events that can be anticipated and may occur but that are not imminent are not an emergency.

33. "Emergent wetland" means a wetland with at least 30 percent of the surface area covered by erect, rooted, herbaceous vegetation as the uppermost vegetative strata.

34. “Enhancement” means actions performed within an existing degraded sensitive area and/or buffer to intentionally increase or augment one or more functions or values of the existing sensitive area or buffer. Enhancement actions include but are not limited to increasing plant diversity and cover, increasing wildlife habitat and structural complexity (snags, woody debris), installing environmentally compatible erosion controls, or removing non-indigenous plant or animal species.

35. “Erosion” means a process whereby wind, rain, water and other natural agents mobilize, and transport, and deposit soil particles.

36. “Erosion hazard areas” means lands or areas underlain by soils identified by the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) as having “severe” or “very severe” erosion hazards and areas subject to impacts from lateral erosion related to moving water such as river channel migration and shoreline retreat.

37. “Essential public facility” means those facilities that are typically difficult to site, such as airports, state education facilities, and state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and inpatient facilities including substance abuse facilities, mental health facilities, and group homes.

38. “Existing and ongoing agricultural activities” means those activities conducted on lands defined in RCW 36.70A.030 and those activities involved in the production of crops and livestock, including but not limited to operation and maintenance of existing farm and stock ponds or drainage ditches, irrigation systems, changes between agricultural activities, and maintenance or repair of existing serviceable structures and facilities. Activities that result in the filling of an area or bring an area into agricultural use are not part of an ongoing activity. An operation ceases to be ongoing when the area on which it was conducted has been converted to a non-agricultural use, or has lain idle for more than five years unless that idle land is registered in a federal or state soils conservation program. Forest practices are not included in this definition.

39. "Exotic" means any species of plants or animals that is not indigenous to the area.
40. "Farm pond" means an open water depression created from a non-wetland site in connection with agricultural activities.
41. “Feasible alternative” means an alternative that is available and reasonably capable of being carried out after taking into consideration, cost, existing technology, and logistics in light of overall project purposes, and having less impact to sensitive areas.
42. "Fen" means a mineral-rich wetland formed in peat that has a neutral to alkaline pH. Fens are wholly or partly covered with water and dominated by grass-like plants, grasses, and sedges.
43. “Fill material” means any solid or semi-solid material, including rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure, that when placed, changes the grade or elevation of the receiving site.
44. “Filling” means the act of transporting or placing by any manual or mechanical means fill material from, to, or on any soil surface, including temporary stockpiling of fill material.
45. Fish and wildlife habitat conservation areas” are areas important for maintaining species in suitable habitats within their natural geographic distribution so that isolated populations are not created.
46. "Fish habitat" means a complex of physical, chemical, and biological conditions that provide the life supporting and reproductive needs of a species or life stage of fish. Although the habitat requirements of a species depend on its age and activity, the basic components of fish habitat in rivers, streams, ponds, lakes, estuaries, marine waters, and nearshore areas include, but are not limited to, the following:

1. Clean water and appropriate temperatures for spawning, rearing, and holding;
2. Adequate water depth and velocity for migrating, spawning, rearing, and holding, including off-channel habitat;
3. Abundance of bank and in-stream structures to provide hiding and resting areas and stabilize stream banks and beds;
4. Appropriate substrates for spawning and embryonic development. For stream and lake dwelling fishes, substrates range from sands and gravel to rooted vegetation or submerged rocks and logs. Generally, substrates must be relatively stable and free of silts or fine sand;
5. Presence of riparian vegetation as defined in this article. Riparian vegetation creates a transition zone, which provides shade and food sources of aquatic and terrestrial insects for fish;
6. Unimpeded passage (i.e. due to suitable gradient and lack of barriers) for upstream and downstream migrating juveniles and adults.

47. “Flood or flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland waters and/or the unusual and rapid accumulation of runoff of surface waters from any source.
48. “Floodplain” means the total land area adjoining a river, stream, watercourse, or lake subject to inundation by the base flood.
49. “Floodway” means the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base flood without cumulatively increasing the surface water elevation more than one (1) foot. Also known as the "zero rise floodway."
50. "Forested wetland" means a wetland with at least 30 percent of the surface area covered by woody vegetation greater than 20 feet in height, excluding monotypic stands of red alder or cottonwood that average eight inches diameter at breast height or less.
51. “Frequently flooded areas” means lands in the floodplain subject to a one percent (1%) or greater chance of flooding in any given year and those lands that provide important flood storage, conveyance and attenuation functions, as determined by the City in accordance with WAC 365-190-080(3). Classifications of frequently flooded areas include, at a minimum, the 100-year floodplain designations of the Federal Emergency Management Agency and the National Flood Insurance Program.
52. “Function assessment or functions and values assessment” mean a set of procedures, applied by a qualified consultant, to identify the ecological functions being performed in a wetland or other sensitive area, usually by determining the presence of certain characteristics, and determining how well the sensitive area is performing those functions. Function assessments can be qualitative or quantitative and may consider social values potentially provided by the wetland or other sensitive area. Function assessment methods must be consistent with Best Available Science.

53. “Function and value” means the beneficial roles served by sensitive areas and the values people derive from these roles including, but not limited to, water quality protection and enhancement, fish and wildlife habitat, food chain support, flood storage, conveyance and attenuation, ground water recharge and discharge, erosion control, wave attenuation, protection from hazards, providing historical and archaeological resources, noise and visual screening, open space, and recreation. These beneficial roles are not listed in order of priority.
54. "Functions" means the processes or attributes provided by areas of the landscape (e.g. wetlands, rivers, streams, and riparian areas) including, but not limited to, habitat diversity and food chain support for fish and wildlife, ground water recharge and discharge, high primary productivity, low flow stream water contribution, sediment stabilization and erosion control, storm and flood water attenuation and flood peak desynchronization, and water quality enhancement through biofiltration and retention of sediments, nutrients, and toxicants. These beneficial roles are not listed in order of priority.
55. "Game fish" means those species of fish that are classified by the Washington Department of Wildlife as game fish (WAC 232-12-019).
56. "Geologically hazardous areas" means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, pose unacceptable risks to public health and safety and may not be suited to commercial, residential, or industrial development.
57. "Gradient" means a degree of inclination, or a rate of ascent or descent, of an inclined part of the earth's surface with respect to the horizontal; the steepness of a slope. It is expressed as a ratio (vertical to horizontal), a fraction (such as meters/ kilometers or feet/miles), a percentage (of horizontal distance), or an angle (in degrees).
58. “Grading” means any excavating or filling of the earth’s surface or combination thereof.
59. "Ground water" means all water that exists beneath the land surface or beneath the bed of any stream, lake or reservoir, or other body of surface water within the boundaries of the state, whatever may be the geological formation or structure in which such water stands or flows, percolates or otherwise moves (Chapter 90.44 RCW).
60. "Growing season" means the portion of the year when soil temperatures are above biologic zero (41 degrees Fahrenheit).
61. “Growth Management Act” means RCW 36.70A, and 36.70B, as amended.
62. “Hazard tree” means any tree that is susceptible to immediate fall due to its condition (damaged, diseased, or dead) or other factors, and which because of its location is at risk of damaging permanent physical improvements to property or causing personal injury.
63. “Hazardous substance” means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical or biological properties described in WAC 173-303-090 or 173-303-100.
64. “Hydraulic project approval” (HPA) means a permit issued by the state Department of Fish and Wildlife for modifications to waters of the state in accordance with Chapter 75.20 RCW.
65. “Hydric soil” means a soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part. The presence of hydric soil shall be determined following the methods described in the Washington State Wetland Identification and Delineation Manual (RCW 36.70A.175).
66. “Hydrologic soil groups” means soils grouped according to their runoff-producing characteristics under similar storm and cover conditions. Properties that influence runoff potential are depth to seasonally high water table, intake rate and permeability after prolonged wetting, and depth to a low permeable layer. Hydrologic soil groups are normally used in equations that estimate runoff from rainfall, but can be used to estimate a rate of water transmission in soil. There are four hydrologic soil groups:
    1. Low runoff potential and a high rate of infiltration potential;
    2. Moderate infiltration potential and a moderate rate of runoff potential;
    3. Slow infiltration potential and a moderate to high rate of runoff potential; and
    4. High runoff potential and very slow infiltration and water transmission rates.
67. “Hydrophytic vegetation” means macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.
68. “Hyporheic zone” means the saturated zone located beneath and adjacent to streams that contain some proportion of surface water from the surface channel. The hyporheic zone serves as a filter for nutrients, as a site for macroinvertebrate production important in fish nutrition and provides other functions related to maintaining water quality.

69. “Impervious surface” means a hard surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development or that causes water to run off the surface in greater quantities or at an increased rate of flow compared to natural conditions prior to development. Common impervious surfaces may include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled macadam or other surfaces which similarly impede the natural infiltration of storm water. Impervious surfaces do not include surface created through proven low impact development techniques.
70. “Infiltration” means the downward entry of water into the immediate surface of soil.
71. “In-kind compensation” means to replace sensitive areas with substitute areas whose characteristics and functions closely approximate those destroyed or degraded by a regulated activity.
72. "Lake" means a naturally or artificially created body of deep (generally greater than 6.6 feet) open water that persists throughout the year. A lake is larger than a pond, greater than one acre in size, equal or greater than 6.6 feet in depth, and has less than 30 percent (30%) aerial coverage by trees, shrubs, or persistent emergent vegetation. A lake is bounded by the ordinary high water mark or the extension of the elevation of the lake’s ordinary high water mark with the stream where the stream enters the lake.
73. “Landfill” means a disposal facility or part of a facility at which solid waste is permanently placed in or on land including facilities that use solid waste as a component of fill.
74. "Landslide" means a general term covering a wide variety of mass movement landforms and processes involving the downslope transport, under gravitational influence of soil and rock material en masse; included are debris flows, debris avalanches, earthflows, mudflows, slumps, mudslides, rock slides, and rock falls.
75. “Landslide hazard areas” means areas that, due to a combination of site conditions like slope inclination and relative soil permeability are susceptible to mass wasting.
76. "Maintenance and repair" means work required to keep existing improvements in their existing operational state. This does not include any modification that changes the character, scope, or size of the original structure, facility, utility or improved area.
77. “Mass wasting” means downslope movement of soil and rock material by gravity. This includes soil creep, erosion, and various types of landslides, not including bed load associated with natural stream sediment transport dynamics.
78. "Mature forested wetland" means a wetland with an overstory dominated by mature trees having a wetland indicator status of facultative (FAC), facultative-wet (FACW), or obligate (OBL). Mature trees are considered to be at least 21 inches in diameter at breast height.
79. "Mean annual flow" means the average flow of a river, or stream (measured in cubic feet per second) from measurements taken throughout the year. If available, flow data for the previous 10 years should be used in determining mean annual flow.
80. "Mitigation" means individual actions that may include a combination of the following measures, listed in order of preference:

1. Avoiding an impact altogether by not taking a certain action or parts of actions;
2. Minimizing impacts by limiting the degree or magnitude of an action and its implementation;
3. Rectifying impacts by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action;
5. Compensating for an impact by replacing or providing substitute resources or environments; and
6. Monitoring the mitigation and taking remedial action when necessary.

81. “Mitigation bank” means a site where wetlands or similar habitats are restored, created, enhanced, or in exceptional circumstances, preserved, expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to aquatic resources.
82. "Mitigation bank instrument" means the documentation of agency and bank sponsor concurrence on the objectives and administration of the bank. The “bank instrument” describes in detail the physical and legal characteristics of the bank, including the service area, and how the bank will be established and operated.
83. "Mitigation bank sponsor" means any public or private entity responsible for establishing and, in most circumstances, operating a bank.

84. "Mitigation plan" means a detailed plan indicating actions necessary to mitigate adverse impacts to sensitive areas.
85. “Monitoring” means evaluating the impacts of development proposals over time on the biological, hydrological, pedological, and geological elements of such systems and/or assessing the performance of required mitigation measures throughout the collection and analysis of data by various methods for the purpose of understanding and documenting changes in natural ecosystems and features, and includes gathering baseline data.
86. "Native vegetation" means plant species that are indigenous to the King County and the local area.
87. “No net loss” means the maintenance of the aggregate total of the City’s sensitive area functions and values as achieved through a case-by-case review of development proposals. Each project shall be evaluated based on its ability to meet the no net loss goal.
88. "Off-site mitigation" means to replace sensitive areas away from the site on which a sensitive area has been adversely impacted by a regulated activity.
89. "Ordinary high water mark" means the mark or line on all lakes, rivers, streams and tidal water that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland in respect to vegetation (RCW 90.58.030 (2)(b).
90. "Pond" means an open body of water, generally equal to or greater than 6.6 feet deep, that persists throughout the year and occurs in a depression of land or expanded part of a stream and has less than 30 percent (30%) aerial coverage by trees, shrubs, or persistent emergent vegetation. Ponds are generally smaller than lakes. Farm ponds are excluded from this definition.
91. "Potable" means water that is suitable for drinking by the public (Chapter 246-290 WAC).
92. “Practical alternative” See feasible alternative.
93. “Preservation” means actions taken to ensure the permanent protection of existing, ecologically important sensitive areas and/or buffers that the City has deemed worthy of long-term protection.
94. “Primary Association” means the use of a habitat area by a listed or priority species for breading/spawning, rearing young, resting, roosting, feeding, foraging, and/or migrating on a frequent and/or regular basis during the appropriate season(s) as well as habitats that are used less frequently/regularly but which provide for essential life cycle functions such as breeding/nesting/spawning.
95. “Priority habitat” means a habitat type with unique or significant value to one or more species. An area classified and mapped as priority habitat must have one or more of the following attributes: Comparatively high fish or wildlife density; comparatively high fish or wildlife species diversity; fish spawning habitat; important wildlife habitat; important fish or wildlife seasonal range; important fish or wildlife movement corridor; rearing and foraging habitat; important marine mammal haul-out; refuge; limited availability; high vulnerability to habitat alteration; unique or dependent species; or shellfish bed. A priority habitat may be described by a unique vegetation type or by a dominant plant species that is of primary importance to fish and wildlife (such as oak woodlands or eelgrass meadows). A priority habitat may also be described by a successional stage (such as, old growth and mature forests). Alternatively, a priority habitat may consist of a specific habitat element (such as a consolidated marine/estuarine shoreline, talus slopes, caves, snags) of key value to fish and wildlife. A priority habitat may contain priority and/or nonpriority fish and wildlife (WAC 173-26-020(24)).
96. “Priority species” means wildlife species of concern due to their population status and their sensitivity to habitat alteration, as defined by the Washington Department of Fish and Wildlife.
97. "Project" means any proposed or existing activity regulated by the City.
98. "Project Permit or Project Permit Application" means any land use or environmental permit or approval required by the City, including but not limited to building permits, subdivisions, binding site plan, planned unit developments, conditional uses, shoreline substantial development permits, variance, lot consolidation relief, site plan review, permits or approvals authorized by a comprehensive plan or subarea plan.
99. “Qualified professional or qualified consultant” means a person with experience and training with expertise appropriate for the relevant sensitive area subject in accordance with WAC 365-195-905(4). A qualified professional must have obtained a B.S. or B.A. or equivalent degree in biology, soil science, engineering, environmental studies, fisheries, geology, geomorphology or related field, and related work experience and meet the following criteria:

1. A qualified professional for wetlands must have a degree in biology, ecology, soil science, botany, or a closely related field and a minimum of five years of professional experience in wetland identification and assessment in the Pacific Northwest.
2. A qualified professional for habitat conservation areas must have a degree in wildlife biology, ecology, fisheries, or closely related field and a minimum of five years professional experience related to the subject species/habitat type.
3. A qualified professional for geologically hazardous areas must be a professional engineering geologist or geotechnical engineer, licensed in the state of Washington.
4. A qualified professional for critical aquifer recharge areas means a Washington state licensed hydrogeologist, geologist, or engineer.

100. “Recharge” means the process involved in the absorption and addition of water from the unsaturated zone to ground water.
101. “Re-establishment” means the manipulation of a former wetland site with the goal of restoring natural or historic wetland characteristics and functions that are no longer present. Re-establishment activities could include, but are not limited to, grading/excavation, removing fill material, plugging ditches, breaking drain tiles, and planting. Re-establishment results in a gain in wetland acres and functions.
102. “Rehabilitation” means the manipulation of the physical or hydrological characteristics of an existing degraded wetland for the purposes of repairing natural or historic functions and processes. Activities could involve, but are not limited to, breaching a dike to reconnect wetlands to a floodplain or other activities that restore the natural water regime. Rehabilitation results in a gain in wetland functions and processes but does not result in a gain in wetland acres.
103. “Repair or maintenance” means an activity that restores the character, scope, size, and design of a serviceable area, structure, or land use to its previously authorized and undamaged condition. Activities that change the character, size, or scope of a project beyond the original design and drain, dredge, fill, flood, or otherwise alter sensitive areas are not included in this definition.
104. “Resident fish’ means a fish species that completes all stages of its life cycle within freshwater and frequently within a local area.
105. “Restoration” See re-establishment.
106. “Rills” means steep-sided channels resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery. Rill erosion tends to occur on slopes, particularly steep slopes with poor vegetative cover.
107. "Riparian corridor or riparian zone" means the area adjacent to a water body that contains vegetation that influences the aquatic ecosystem and fish habitat by providing shade, fine or large woody material, nutrients, organic debris, sediment filtration, and terrestrial insects (fish prey production). Riparian areas include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., zone of influence). Riparian zones provide important wildlife habitat. They provide sites for foraging, breeding and nesting; cover to escape predators or weather; and corridors that connect different parts of a watershed for dispersal and migration.
108. "Riparian vegetation" means vegetation that tolerates and/or requires moist conditions and periodic free flowing water thus creating a transitional zone between aquatic and terrestrial habitats which provides cover, shade and food sources for aquatic and terrestrial insects for fish species. Riparian vegetation and their root systems stabilizes stream banks, attenuates high water flows, provides wildlife habitat and travel corridors, and provides a source of limbs and other woody debris to terrestrial and aquatic ecosystems, which, in turn, stabilize stream beds.
109. “Scrub-shrub wetland” means a wetland with at least thirty percent (30%) of its surface area covered by woody vegetation less than twenty (20) feet in height as the uppermost strata.
110. “Seismic hazard areas” means areas that are subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction.
111. “Sensitive area report” means a report prepared by a qualified professional or qualified consultant based on Best Available Science, and the specific methods and standards for technical study required for each applicable sensitive area. Geotechnical reports and hydrogeological reports are sensitive area reports specific to geologically hazardous areas and sensitive aquifer recharge areas, respectively.
112. “Sensitive area tract” means land held in private ownership and retained in an open undeveloped condition (native vegetation is preserved) in perpetuity for the protection of sensitive areas.
113. "SEPA" is a commonly used abbreviation for the State Environmental Policy Act.

114. "Shoreline" (Shoreline Management Act) means all of the water areas of the state, including reservoirs and their associated wetlands, together with lands underlying them, except:

1. Shorelines on segments of streams upstream from a point where the mean annual flow is 20 cubic feet per second or less and the wetlands associated with such upstream segments; and
2. Shorelines on lakes less than 20 acres in size and wetlands associated with such small lakes.

115. “Shorelines” are all of the water areas of the state as defined in RCW 90.58.030, including reservoirs and their associated shorelands, together with the lands underlying them except:

1. Shorelines of statewide significance;
2. Shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second (20 cfs) or less and the wetlands associated with such upstream segments; and
3. Shorelines on lakes less than twenty (20) acres in size and wetlands associated with such small lakes.

116. “Shorelines of the state” means the total of all “shorelines,” as defined in RCW 90.58.030(2)(d), and “shorelines of statewide significance” within the state, as defined in RCW 90.58.030(2)(c).

117. “Shorelines of statewide significance” means those areas defined in RCW 90.58.030(2)(e).

118. “Shorelands or shoreland areas” means those lands extending landward for two hundred (200) feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred (200) feet from such floodways; and all wetlands and river deltas associated with the streams, lakes and tidal waters which are subject to the provisions of Chapter 90.58 RCW.

119. “Site” means any parcel or combination of contiguous parcels, or right-of-way or combination of contiguous rights-of way under the applicant’s ownership or control where the proposed project impacts an environmentally sensitive area.

120. “Single family development” means the development of a single family residence permanently installed and served with utilities on a lot of record.

121. "Slope" means:

1. Gradient.
2. The inclined surface of any part of the earth's surface, delineated by establishing its toe and top and measured by averaging the inclination over at least 10 feet of vertical relief.

122. "Soil" means all unconsolidated materials above bedrock described in the Soil Conservation Service Classification System or by the Unified Soils Classification System.

123. "Sphagnum bog" means a type of wetland dominated by mosses of the genus *Sphagnum* that form peat. Sphagnum bogs are very acidic, nutrient poor systems, fed by precipitation rather than surface inflow, with specially adapted plant communities.

124. "Streams" are those areas where surface waters produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the annual passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined-channel swales. The channel or bed need not contain water year-round. This definition includes drainage ditches or other artificial water courses where natural streams existed prior to human alteration, and/or the waterway is used by anadromous or resident salmonid or other fish populations.

125. “Structure” means a permanent or temporary building or edifice of any kind, or any piece of work artificially built up or composed of parts joined together in some definite matter whether installed on, above, or below the surface of the ground or water, except for vessels.

126. "Toe" means the lowest part of a slope or cliff; the downslope end of an alluvial fan, landslide, etc.

127. "Top" means the top of a slope; or in this chapter it may be used as the highest point of contact above a landslide hazard area.

128. “Unavoidable” means adverse impacts that remain after all appropriate and practicable avoidance and minimization measures have been implemented.

129. "Utilities" means all lines and facilities used to distribute, collect, transmit, or control electrical power, natural gas, petroleum products, information (telecommunications), water, and sewage.

130. “Wet season” means the period generally between November 1 and March 30 of most years when soils are wet and prone to instability. The specific beginning and end of the wet season can vary from year to year depending on weather conditions.

131. "Watershed" means a geographic region within which water drains into a particular river, stream or body of water.
132. "Well head protection area" means the area (surface and subsurface) managed to protect ground water based public water supplies.
133. "Wet meadow" means palustrine emergent wetlands, typically having disturbed soils, vegetation, or hydrology.
134. "Wetland delineation" means the precise determination of wetland boundaries in the field according to the application of specific methodology as described in the 1997 Washington State Wetland Delineation Manual or 1987 edition, as amended, Corps of Engineers Wetlands Delineation Manual and the mapping thereof.
135. "Wetland Enhancement" See" mitigation."
136. "Wetland Restoration" See "mitigation" and "re-establishment"
137. "Wetland" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including but not limited to irrigation and drainage ditches, grass-lined swales, canals, detention facilities, retention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands include those artificial wetlands intentionally created to mitigate wetland impacts.
138. "Wetland buffer" means a designated area contiguous or adjacent to a wetland that is required for the continued maintenance, function, and ecological stability of the wetland.
139. "Wetland class" means the general appearance of the wetland based on the dominant vegetative life form or the physiography and composition of the substrate. The uppermost layer of vegetation that possesses an aerial coverage of 30 percent (30%) or greater of the wetland constitutes a wetland class. Multiple classes can exist in a single wetland. Types of wetland classes include forest, scrub/shrub, emergent, and open water.
140. "Wetland edge" means the boundary of a wetland as delineated based on the definitions contained in this chapter.
141. "Wetland mitigation bank" means a site where wetlands and buffers are restored, created, enhanced, or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources.
142. "Windthrow" means a natural process by which trees are uprooted or sustain severe trunk damage by the wind.
143. "Wood waste" means solid waste consisting of wood pieces or particles generated as a by-product or waste from the manufacturing of wood products, handling and storage of raw materials and trees and stumps. This includes but is not limited to sawdust, chips, shavings, bark, pulp, hog fuel, and log sort yard waste, but does not include wood pieces or particles containing chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenate.